Rockland County

FACILITIES MANAGEMENT

HON. EDWIN J. DAY
COUNTY EXECUTIVE

ROBERT H. GRUFFI, P.E. LEED AP
DIRECTOR, FACILITIES MANAGEMENT

CAPITAL PROJECT 1519
GOVERNMENT CENTER BUILDING IMPROVEMENTS
COURTHOUSE COOLING TOWER REPLACEMENT

1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING INDEX

DWG #	DRAWING TITLE	ISSUES / REVISIONS: ISSUE FOR PERMIT	ISSUED FOR BID	
COVER				
T0.1	COVER SHEET	X	X	
MECHANICAL				
M0.1	MECHANICAL ABBREVIATIONS, SYMBOLS, AND NOTES	X	X	
M1.1	MECHANICAL DEMOLITION PLANS	X	X	
M2.1	MECHANICAL NEW WORK PLANS	X	X	
M6.1	MECHANICAL SCHEDULES	X	X	
M7.1	MECHANICAL DETAILS	X	X	
ELECTRICAL				
E0.1	ELECTRICAL ABBREVIATIONS, SYMBOLS AND NOTES	X	X	
E1.1	ELECTRICAL DEMOLITION PLANS	X	X	
E1.2	ELECTRICAL DEMOLITION SINGLE LINE DIAGRAMS AND PLAN	X	X	
E2.1	ELECTRICAL NEW WORK PLANS	X	X	
E2.2	ELECTRICAL NEW WORK SINGLE LINE DIAGRAMS AND PLAN	X	X	
E7.1	ELECTRICAL DETAILS	X	X	
TOTAL: 12				

OLA Consulting Engineers

50 Broadway,
Hawthorne, NY 10532
914.747.2800

8 West 38th Street,
Suite 900
New York, NY 10017
646.849.4110

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Rockland County
Facilities Management
Robert H. Gruffi, P.E., LEED AP
Director Facilities Management
Rockland County Courthouse
1 South Main Street
New City, NY 10956

NO.	DESCRIPTION	DATE
2	ISSUED FOR BID	09.09.2024
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PROJECT
CAPITAL PROJECT 1519
GOVERNMENT CENTER BUILDING IMPROVEMENTS COURTHOSE COOLING TOWER REPLACEMENT
1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING TITLE
COVER SHEET

SEAL

SCALE

PROJECT NO.
NRCK0018

DRAWN BY
JC

DRAWING NO.
T0.1

CHECKED BY
RS

DATE
2024.04.05

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ABBREVIATIONS

ABBREVIATION	DESCRIPTION
ABV	ABOVE
AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
ADA	AMERICAN DISABILITIES ACT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AHC	ABOVE HUNG CEILING
AHJ	AUTHORITIES HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AUTO	AUTOMATIC
B	BOILER
BDD	BACKDRAFT DAMPER
BEL	BELOW
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNITS PER HOUR
CA	COMPRESSED AIR
CAV	CONSTANT AIR VOLUME
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CNDS	CONDENSATE
CO2	CARBON DIOXIDE
COD	CABLE OPERATED DAMPER
CP	CONDENSATE PUMP
CT	COOLING TOWER
CWP	CONDENSER WATER PUMP
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEM.	DEMOLISH
DET	DETAIL
DIA, Ø	DIAMETER
DN	DOWN
DR	DIESEL RETURN
DS	DIESEL SUPPLY
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EL	ELEVATION
ELEC	ELECTRICAL
ENT	ENTERING
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
FCU	FAN COIL UNIT
FLEX	FLEXIBLE
FLR	FLOOR
FOR	FOIL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FPM	FEET PER MINUTE
FS	FLOOR SINK
FSD	FIRE SMOKE DAMPER
FT	FLOOR, FEET
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY
°F	DEGREES FAHRENHEIT
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GLR	GLYCOL RETURN
GLS	GLYCOL SUPPLY
GPM	GALLONS PER MINUTE
HG	REFRIGERANT HOT GAS
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HORSEPOWER
HP	HEAT PUMP
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HR	HOUR
HV	HEATING & VENTILATING UNIT

ABBREVIATION	DESCRIPTION
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IN	INCH, INCHES
IN WG	INCHES WATER GAUGE
KW	KILOWATT
KX	KITCHEN EXHAUST AIR
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LF	LINEAR FEET
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAU	MAKEUP AIR
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MISC	MISCELLANEOUS
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
NC	NORMALLY CLOSED, NOISE CRITERIA
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
P	PUMP
PCWR	PRIMARY CONDENSER WATER RETURN
PCWS	PRIMARY CONDENSER WATER SUPPLY
PD	PRESSURE DROP
PD	PUMP DISCHARGE
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
POS	POSITIVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONING UNIT
RA	RETURN AIR
REL	REMOVE AND RELOCATE
REQD	REQUIRED
RF	RETURN FAN
RH	REHEAT COIL
RL	REFRIGERANT LIQUID
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SCWR	SECONDARY CONDENSER WATER RETURN
SCWS	SECONDARY CONDENSER WATER SUPPLY
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SOV	SHUT OFF VALVE
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SR	SUPPLY REGISTER
SS	STAINLESS STEEL
STD	STANDARD
STRUCT	STRUCTURAL
TA	TRANSFER AIR
TD	TRANSFER DUCT
TDH	TOTAL DYNAMIC HEAD
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TX	TOILET EXHAUST AIR
TYP.	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB
WG	INCHES OF WATER GAUGE
WMS	WIRE MESH SCREEN

GENERAL SYMBOLS

SYMBOL	DESCRIPTION
1 VIEW TITLE SCALE: NTS	PLAN TITLE NO. 1
1 M2.1 TITLE SCALE: NTS	TITLE MARK DETAIL VIEW NO. 1 FOUND ON SHEET M-2.1
1 M7.1	DETAIL REFERENCE DETAIL NO. 1 FOUND ON SHEET M-7.1
1 M-3.1 / 1 M-3.1	SECTION MARK SECTION VIEW NO. 1 FOUND ON SHEET M-3.1
1 M4.1	ENLARGED VIEW CALLOUT PLAN VIEW NO. 1 FOUND ON SHEET M4.1
1	REVISION CLOUD (DELTA 1)
	EXISTING TO REMAIN
	REMOVE AND RELOCATE
	NEW WORK
	EXISTING TO BE REMOVED
	POINT OF CONNECTION
	POINT OF DISCONNECTION
#	SHEET KEYNOTE

WATERSIDE SYMBOLS

SYMBOL	DESCRIPTION
	TEE DOWN
	ELBOW DOWN
	TEE UP
	ELBOW UP
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	FLOW ARROW
	3-WAY VALVE
	2-WAY VALVE
	PLUG VALVE
	LOCK SHIELD VALVE
	GATE VALVE
	GLOBE VALVE
	OS&Y GATE VALVE
	BUTTERFLY VALVE
	BALANCING VALVE
	SOLENOID VALVE
	MOTORIZED VALVE
	ANGLE GLOBE VALVE
	ANGLE GATE VALVE
	T&P RELIEF VALVE
	BALL VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	STRAINER
	BASKET STRAINER
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PRESSURE GAUGE
	THERMOMETER
	UNION
	PIPE GUIDE
	PIPE ANCHOR
	FLEXIBLE CONNECTION

GENERAL NOTES

1. DUCT DIMENSIONS SHOWN ON MECHANICAL DRAWINGS REFER TO INSIDE CLEAR DUCT DIMENSIONS. WHERE DUCTWORK IS LINED THE CONTRACTOR SHALL INCREASE THE SIZE OF DUCT TO COMPENSATE FOR LINING.
2. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO THE BEGINNING OF WORK AND COORDINATE NEW WORK.
3. THIS CONTRACTOR SHALL SUBMIT FOR REVIEW A COMPOSITE SHOP DRAWING, FULLY COORDINATED WITH ALL OTHER TRADES. THE COORDINATED SHOP DRAWING SHALL INDICATE MECHANICAL EQUIPMENT, PIPING, POWER CONDUITS, AND STEEL DUNNAGE.
4. CONTRACT DRAWINGS AS FAR AS THEY RELATE TO THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT, PIPING AND SHEETMETAL, SHALL BE UNDERSTOOD AS DIAGRAMMATIC. ANY CHANGES TO SHEETMETAL AND EQUIPMENT LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TRADES SHALL BE MADE AT NO EXTRA COST.

APPLICABLE CODES AND STANDARDS

THIS PROJECT SHALL COMPLY WITH, BUT NOT LIMITED TO THE FOLLOWING CODES AND STANDARDS:

- 2020 NEW YORK STATE BUILDING CODE
- 2020 NEW YORK STATE MECHANICAL CODE
- 2020 NEW YORK STATE ENERGY CODE
- 2020 NEW YORK STATE PLUMBING CODE
- 2020 NEW YORK STATE FIRE CODE
- 2017 NEW YORK STATE ELECTRICAL CODE
- ANY AND ALL LOCAL AMENDMENTS

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DRAWING TITLE

MECHANICAL ABBREVIATIONS, SYMBOLS, AND NOTES

SEAL	SCALE	PROJECT NO.
	12" = 1'-0"	NRCK0018
	DRAWN BY: JC	DRAWING NO.
	CHECKED BY: RS	M0.1
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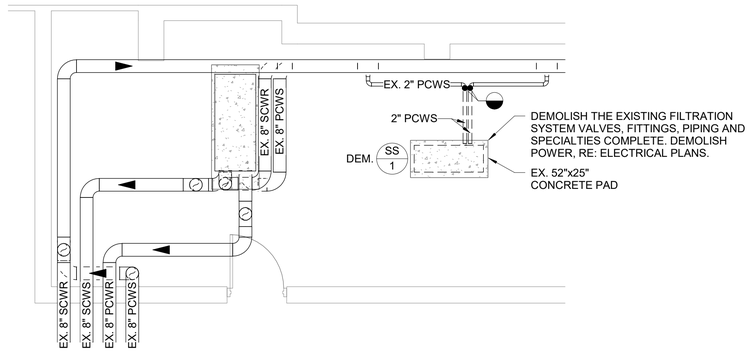
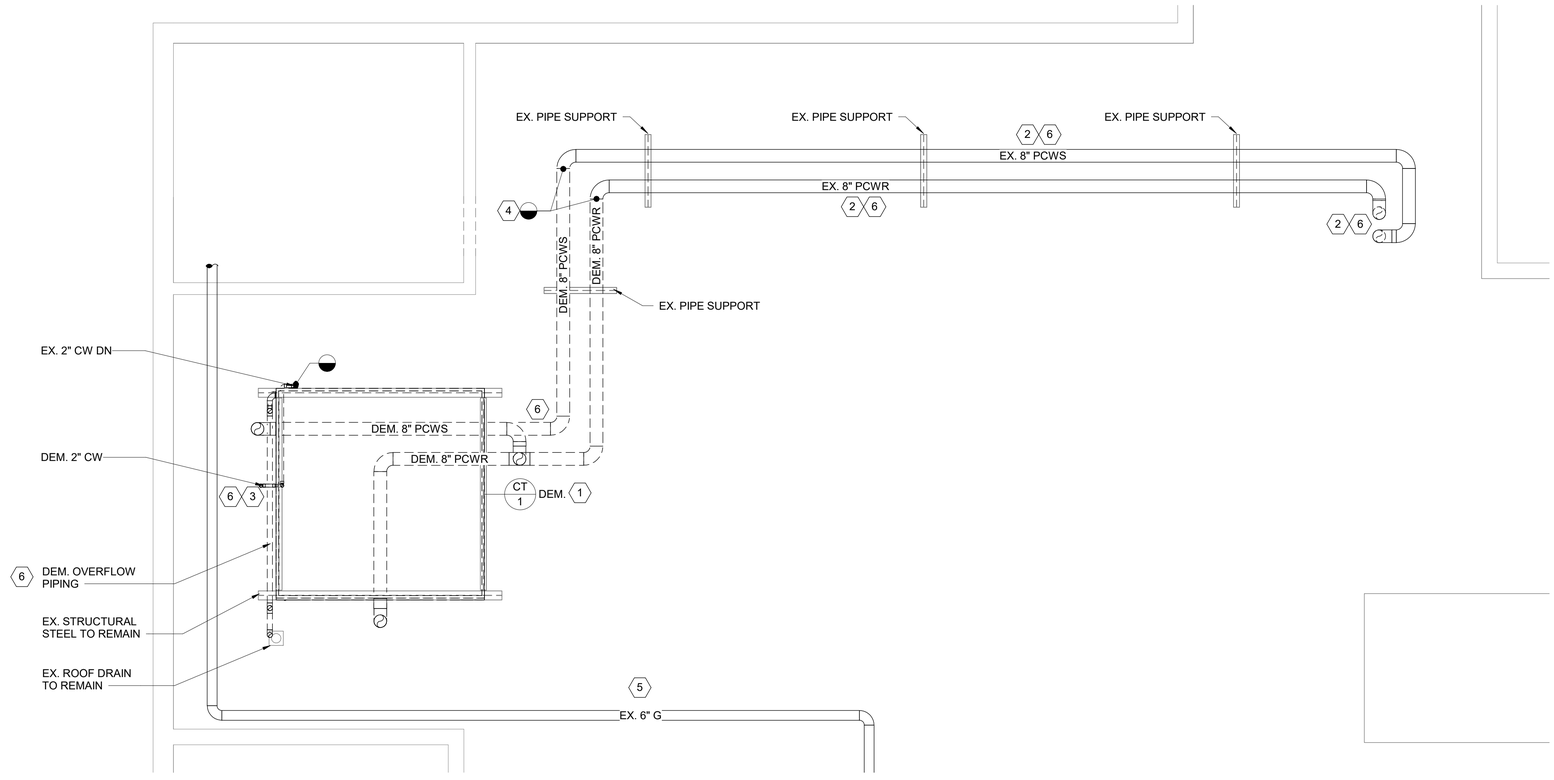


2 LEVEL 02 MECHANICAL DEMOLITION PLAN

NORTH

SCALE: 1/4" = 1'-0"



1 ROOF MECHANICAL DEMOLITION PLAN

NORTH

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. CONDITIONS MAY NOT BE EXACTLY AS INDICATED ON THIS DRAWING. HVAC CONTRACTOR SHALL VISIT THE SITE TO UNDERSTAND THE EXISTING FIELD CONDITIONS AND TO VERIFY SCOPE OF WORK PRIOR TO SUBMITTING BID. NO ALLOWANCE WILL BE MADE AFTER CONTRACT IS APPROVED.
2. ALL ABANDONED AND UNUSED EQUIPMENT SHALL BE REMOVED.
3. CONTRACTOR SHALL REPAIR ANY LEAKS IN THE CONDENSER WATER SYSTEM, INCLUDING PIPING NOT SPECIFICALLY SHOWN ON PLAN. SUBMIT REPORT TO ENGINEER.
4. COORDINATE ALL SHUTDOWNS WITH BUILDING FACILITIES, OWNER, AND TENANTS.

KEYNOTES

1. DEMOLISH COOLING TOWER AND ASSOCIATED PIPING AS SHOWN. REMOVE VIBRATION ISOLATORS AND DUNNAGE ON TOP OF THE STRUCTURAL STEEL FRAMING. STRUCTURAL STEEL FRAMING TO REMAIN.
2. REMOVE INSULATION FOR ALL CONDENSER WATER PIPING ON THE ROOF. RE-FINISH ANY RUST-DAMAGED SEGMENTS OF THE CONDENSER WATER PIPING.
3. DEMOLISH 2" CW BACK TO SHUT-OFF VALVE. CAP AND SEAL OPEN PIPING WHILE WORK IS NOT BEING PERFORMED.
4. DISCONNECT CONDENSER WATER PIPING. CAP AND SEAL WHILE WORK IS NOT BEING PERFORMED.
5. NO WORK TO THE EXISTING GAS LINE. SHOWN FOR REFERENCE ONLY.
6. DEMOLISH HEAT TRACING ASSOCIATED ON THE EXISTING PCWS/R PIPING ABOVE THE ROOF.

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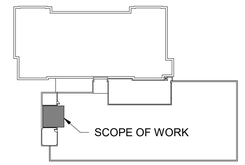

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MECHANICAL DEMOLITION PLANS

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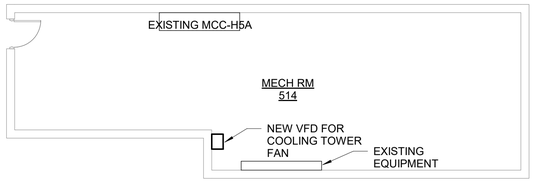
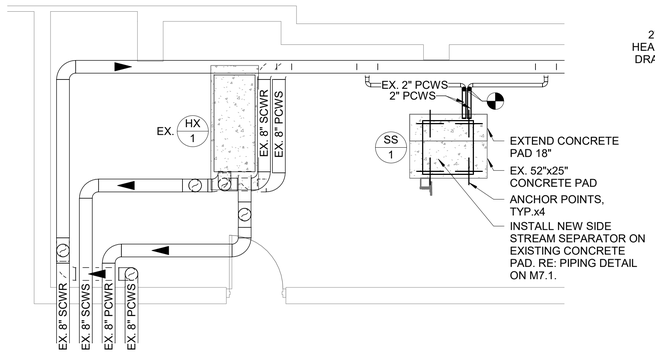
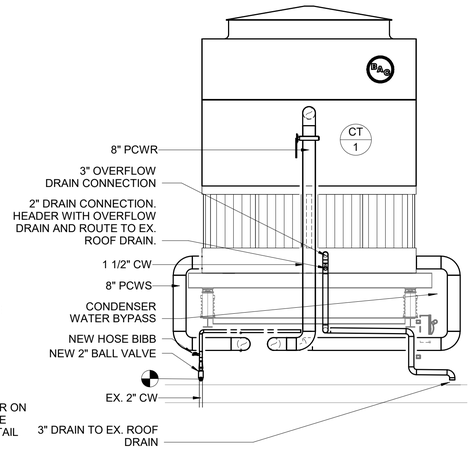


5 LEVEL 05 MECHANICAL NEW WORK PLAN

SCALE: 1/8" = 1'-0"

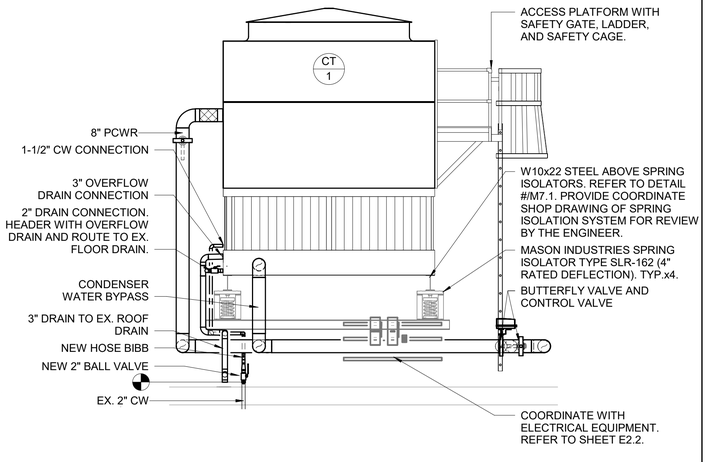
NORTH





4 COOLING TOWER ELEVATION - SIDE

SCALE: 1/4" = 1'-0"



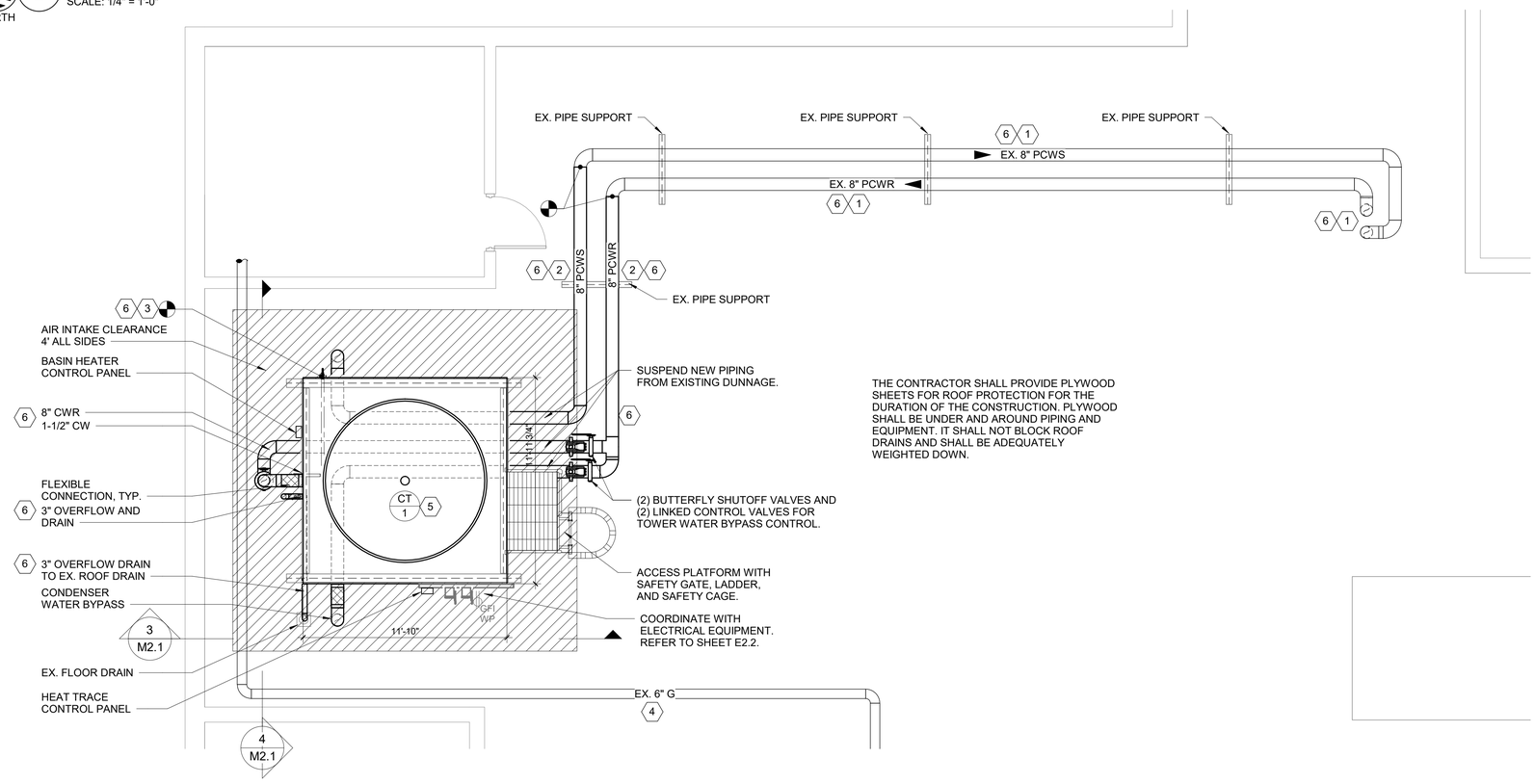
3 COOLING TOWER ELEVATION - FRONT

SCALE: 1/4" = 1'-0"

2 LEVEL 02 MECHANICAL NEW WORK PLAN

SCALE: 1/4" = 1'-0"

NORTH



THE CONTRACTOR SHALL PROVIDE PLYWOOD SHEETS FOR ROOF PROTECTION FOR THE DURATION OF THE CONSTRUCTION. PLYWOOD SHALL BE UNDER AND AROUND PIPING AND EQUIPMENT. IT SHALL NOT BLOCK ROOF DRAINS AND SHALL BE ADEQUATELY WEIGHTED DOWN.

1 ROOF MECHANICAL NEW WORK PLAN

SCALE: 1/4" = 1'-0"

NORTH

GENERAL NOTES

1. CONDITIONS MAY NOT BE EXACTLY AS INDICATED ON THIS DRAWING. HVAC CONTRACTOR SHALL VISIT THE SITE TO UNDERSTAND THE EXISTING FIELD CONDITIONS AND TO VERIFY SCOPE OF WORK PRIOR TO SUBMITTING BID. NO ALLOWANCE WILL BE MADE AFTER CONTRACT IS APPROVED.
2. CONTRACTOR SHALL REPAIR ANY LEAKS IN THE CONDENSER WATER SYSTEM, INCLUDING PIPING NOT SPECIFICALLY SHOWN ON PLAN. SUBMIT REPORT TO ENGINEER.
3. COORDINATE ALL SHUTDOWNS WITH BUILDING FACILITIES, OWNER, AND TENANTS.
4. MECHANICALLY CLEAN ALL THE EXISTING CWS&R PIPING ON THE ROOF OF RUST. WIRE WHEEL DOWN TO BASE METAL. COAT WITH RUST STOPPING AGENT AS PER MANUFACTURER'S INSTRUCTIONS . INTERSTATE "ONE STEP" RUST KILLER, OR EASTWOOD RUST ENCAPSULATOR PLUS, OR LOCKTITE RUST TREATMENT 754.
5. PAINT ALL NEW AND EXISTING CONDENSER WATER PIPING WITH RUST PREVENTATIVE PRIMER AND GRAY ENAMEL OIL BASED PAINT.
6. RE-INSULATE ALL CONDENSER WATER PIPING ABOVE THE ROOF AND JACKET WITH WATERPROOF JACKET AS PER SPECIFICATIONS.
7. STENCIL JACKET AND LABEL ALL PIPING INCLUDING FLOW ARROWS.
8. THE EXISTING STEEL DUNNAGE SHALL BE CLEANED OF ALL RUST BY MECHANICAL GRINDING OR WIRE WHEEL. COAT BARE METAL SPOTS WITH COLD GALVANIZED BY ZRC.
9. NEW DUNNAGE, HANGER BRACKETS, PIPE OR CONDUIT SUPPORTS SHALL BE GALVANIZED STEEL. CLEAN AND COLD GALVANIZE ALL WELDS IN THE FIELD WITH ZRC.
10. ALL FASTENERS, NUTS, BOLTS, WASHERS, ETC. SHALL BE GALVANIZED STEEL.

KEYNOTES

1. RE-INSULATE ALL ROOFTOP CONDENSER WATER PIPING. REFER TO SPECIFICATIONS.
2. RE-USE PIPE SUPPORTS.
3. PROVIDE NEW 2" BALL VALVE AND CONNECT TO EXISTING COLD WATER AT ROOF PENETRATION.
4. NO WORK TO THE EXISTING GAS LINE. SHOWN FOR REFERENCE ONLY.
5. VFD IS LOCATED IN ROOM MECH RM 514 ON LEVEL 5. REFER TO 2/E2.2 FOR EXACT LOCATION.
6. PROVIDE NEW HEAT TRACING ON ALL NEW AND EXISTING PCWS/R, COLD WATER MAKEUP, AND DRAIN PIPING ABOVE THE ROOF.

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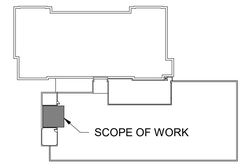

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MECHANICAL NEW WORK PLANS

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	CHECKED BY: RS	M2.1
	DATE: 2024.04.05	

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COOLING TOWER SCHEDULE

DESIGNATION	CT-1
LOCATION	ROOF
MANUFACTURER	BAC
MODEL	PT2-1212A-2M1
TYPE	INDUCED DRAFT COUNTERFLOW
OPERATING WEIGHT (LBS)	12,440
NOMINAL SIZE (TONS)	400
DESIGN WET BULB TEMP. (°F)	78
GPM (PER CELL)	1200
WPD (FT H20)	12.2
EWT / LWT (°F)	85/95
FANS	
NO. OF FANS	1
MOTOR HP (EACH)	20
TOTAL FAN AIRFLOW (CFM)	90,356
STARTER TYPE	VFD
STARTER LOCATION	SEE PLANS
DISCONNECT SWITCH	YES
CONNECTION SIZES:	
INLET (IN.)	8
OUTLET (IN.)	8
COLD WATER MAKE UP (IN.)	1 1/2"
DRAIN (IN.)	2
OVERFLOW (IN.)	3
ELECTRICAL DATA:	
VOLTAGE / PH / FREQ.	460/3/60

NOTES:
1. PROVIDE UNITARY CONTROLLER BY AUTOMATIC TEMPERATURE CONTROLS MANUFACTURER. ALL CONTROLS SHALL BE TRANE TRACE SUMMIT COMPATIBLE WITH THE EXISTING BUILDING VERSION.
2. PROVIDE VIBRATION ISOLATION RAIL PACKAGE BY COOLING TOWER MANUFACTURER, TO BE INSTALLED BETWEEN THE TOWER & SUPPORTING STEEL.
3. PROVIDE WITH LOW SOUND FAN.
4. TOWER SHALL BE ALL 304 OR 316 STAINLESS STEEL CONSTRUCTION.
5. ALL MOTOR STARTERS, VARIABLE FREQUENCY DRIVES, AND DISCONNECT SWITCHES SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR & INSTALLED BY THE ELECTRICAL CONTRACTOR.
6. ALL MOTORS 1 HP OR GREATER SHALL BE PREMIUM EFFICIENCY.
7. ALL MOTORS FURNISHED WITH VARIABLE FREQUENCY DRIVES SHALL BE INVERTER DUTY RATED AND APPROVED FOR VARIABLE SPEED AND TORQUE APPLICATIONS.
8. PROVIDE WITH SERVICE PLATFORM WITH 42" HANDRAILS AROUND TOP OF TOWER, SAFETY GATES AND ACCESS LADDER BY MANUFACTURER. ALL COMPONENTS SHALL BE GALVANIZED STEEL.
9. PROVIDE WITH ELECTRIC WATER LEVEL CONTROL PACKAGE.
10. PROVIDE WITH FACTORY-FURNISHED FULL FLOW BYPASS CONNECTION.
11. PROVIDE 12KW BASIN HEATER FOR EACH CELL WITH CONTROL PANEL, COMBINATION MOTOR STARTER AND DISCONNECT SWITCH. 460/3/60.
12. PROVIDE MECHANICAL VIBRATION CUTOUT SWITCH WITH SEPARATE 120V ELECTRICAL CONNECTION.
13. PROVIDE INLET SCREENS AND EXTENDED LUBRICATION LINES.
14. PROVIDE STEEL BRAIDED FLEXIBLE CONNECTION AT THE TOWER INLET AND OUTLET.
15. THE MECHANICAL CONTRACTOR SHALL FURNISH A VFD FOR THE COOLING TOWER FAN AS PER THE SPECIFICATIONS. THE VFD SHALL BE INSTALLED BY THE ELCTRICAL CONTRACTOR IN MER 514.

SIDE STREAM SEPARATOR SCHEDULE

DESIGNATION	SS-1
LOCATION	PUMP ROOM (LEVEL 02)
MANUFACTURER	PEP
MODEL	HMF-24
MAX WORKING PRESSURE...	150
PUMP HORSEPOWER (HP)	2
DIMENSIONS:	
LENGTH (IN.)	36
WIDTH (IN.)	34
HEIGHT (IN.)	55.25
OPERATING WEIGHT (LBS.)	1,076
CONNECTION SIZES:	
INLET (IN.)	1.5
OUTLET (IN.)	1.5
ELECTRICAL DATA:	
VOLTAGE / PH / FREQ.	460/3/60
FLA (A)	2.7

NOTES:
1. PROVIDE NEMA 4X CONTROL ENCLOSURE WITH DISCONNECT SWITCH.
2. PROVIDE A 1-1/2" AUTOMATIC BALL VALVE WITH ASSOCIATED WALL MOUNTED CONTROL PANEL. CONTROL PANEL AND VALVE SHALL BE 120V HARDWIRED.
3. PROVIDE INLET AND OUTLET VALVE KIT.
4. UNIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ASME CODE.

EQUIPMENT NOTES

1. HEAT TRACING CABLE SHALL BE BASED ON NELSON TYPE CLT SELF-REGULATING HEATERS. HEATER CABLE PERFORMANCE FOR CONDENSER WATER PIPING SHALL BE 8 WATTS PER FOOT AT 120 VOLTS AND 15 AMPS. HEATER CABLE PERFORMANCE FOR MAKEUP COLD WATER AND DRAIN/OVERFLOW SHALL BE 5 WATTS PER FOOT AT 120 VOLTS AND 15 AMPS. SYSTEM SHALL BE COMPLETE WITH COMPATIBLE NELSON POWER CONNECTION KIT AND COMPATIBLE NELSON THERMOSTAT. SYSTEM SHALL BE UL LISTED AND APPROVED.
2. PIPE INSULATION (EXTERIOR): SHALL BE AEROFLEX AEROCELL WLP EPDM TUBE OR SHEET FOR PIPING WITH PREMOLDED PIPE FITTING INSULATION. INSTALL WITH AEROFLEX EPDM TAPE. PERMEABILITY SHALL BE 0.01 PER INCH. K +/- 0.245.
3. EXTERIOR PIPE JACKET: SHALL BE POLYGUARD-ALUMNAGUARD ALL WEATHER JACKET. COMPOSITE MEMBRANE CONSISTING OF MULTIPLE UV RESISTANT ALUMINUM FOIL POLYMER LAMINATE.

OLA Consulting Engineers

50 Broadway,
Hawthorne, NY 10532
914.747.2800

8 West 38th Street,
Suite 900
New York, NY 10017
646.849.4110

olace.com

CLIENT

Rockland County

Facilities Management

Robert H. Gruffi, P.E., LEED AP
Director Facilities Management

Rockland County Courthouse
1 South Main Street
New City, NY 10956

NO.	DESCRIPTION	DATE
2	ISSUED FOR BID	09.09.2024
1	ISSUE FOR PERMIT	04.05.2024

PROJECT

CAPITAL PROJECT 1519
GOVERNMENT CENTER BUILDING IMPROVEMENTS COURTHOSE COOLING TOWER REPLACEMENT

1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING TITLE

MECHANICAL SCHEDULES

SEAL	SCALE	PROJECT NO.
		NRCK0018
	DRAWN BY: JC	DRAWING NO.
	CHECKED BY: RS	M6.1
	DATE: 2024.04.05	

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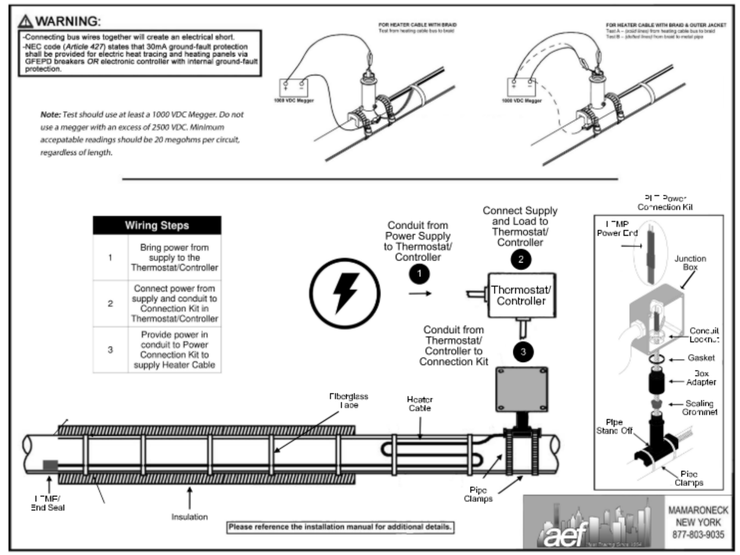
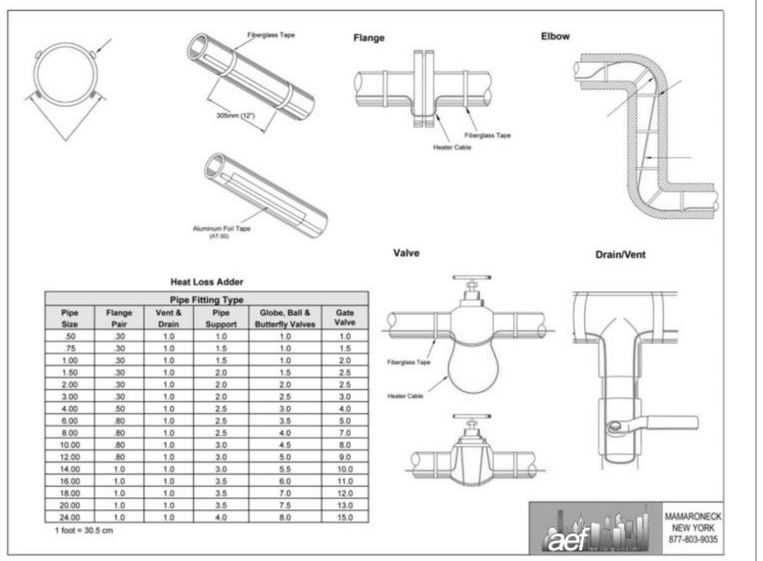
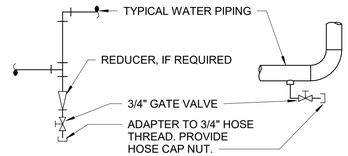


6 HEAT TRACE DETAILS
SCALE: NONE

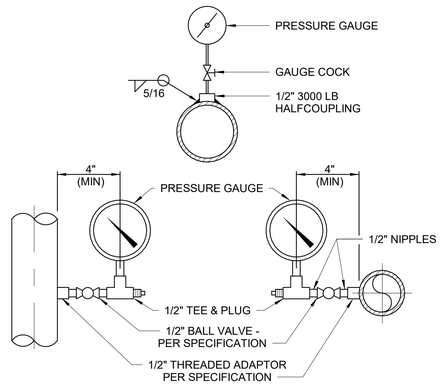


BMS NOTES:
1. HEAT TRACE SHALL OPERATE VIA CONTROL PANEL PROVIDED BY HEAT TRACE MANUFACTURER. THIS CONTRACTOR SHALL CONNECT TO COMMON ALARM DRY CONTACT FOR MONITORING AT THE BMS.



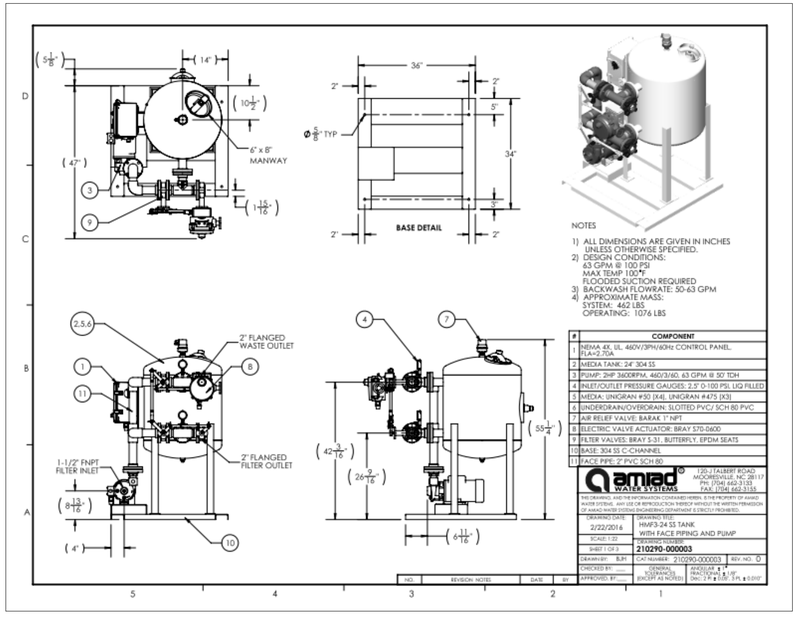
NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS, LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

3 DRAIN VALVE CONNECTION DETAIL
SCALE: NONE

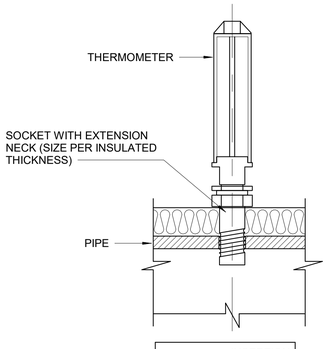


NOTE:
1. PROVIDE PETE'S PLUG IMMEDIATELY ADJACENT TO ALL GAUGE INSTALLATIONS FOR CALIBRATION.

2 PRESSURE GAUGE DETAIL
SCALE: NONE

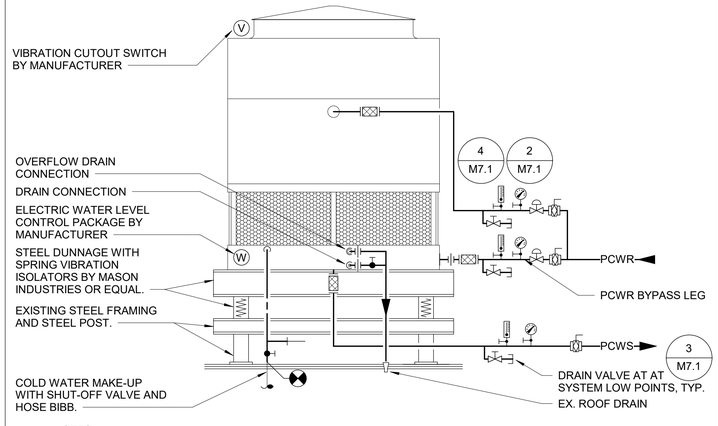


5 SIDE STREAM FILTER DETAIL
SCALE: NONE



NOTE:
1. STEM ADJUSTED TO SUIT EXTENDED NECK REQUIREMENTS.

4 THERMOMETER INSTALLATION DETAIL
SCALE: NONE



NOTES:
1. PROVIDE VARIABLE FREQUENCY DRIVE (VFD) FOR COOLING TOWER FAN SPEED CONTROL. SEE FLOOR PLAN FOR LOCATION.
2. REFER TO DRAWING FOR PIPE SIZES AND CONTINUATION.
3. PROVIDE INTERLOCK FUNCTION BETWEEN COOLING TOWER VIBRATION SWITCH AND TOWER FAN VFD, SO AS TO AUTO STOP FAN IF SWITCH IS TRIPPED DUE TO EXCESS VIBRATION.
4. COORDINATE TOWER SUPPORT STRUCTURE, BASE AND ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN.

1 COOLING TOWER PIPING DETAIL
SCALE: NONE

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DRAWING TITLE
MECHANICAL DETAILS

SEAL	SCALE	PROJECT NO.
	12" = 1'-0"	NRCK0018
	DRAWN BY: JC	DRAWING NO. M7.1
	CHECKED BY: RS	
	DATE: 2024.04.05	

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SYMBOLS AND ABBREVIATIONS

SYMBOL	ABBREVIATION	DESCRIPTION
	-	CONDUIT AND WIRING
	-	CONDUIT & WIRING TO BE REMOVED UON
—UG—	-	BURIED CONDUIT
—OH—	-	OVERHEAD CONDUCTORS
	-	HOMERUN TO PANEL, ARROWS INDICATE # 1P
	-	MULTI-POLE HOMERUN
	-	ELECTRICAL EQUIPMENT AS INDICATED
	-	ELECTRICAL EQUIPMENT TO BE REMOVED UON
M	-	ELECTRIC METER
J	-	JUNCTION BOX
	-	FUSED DISCONNECT SWITCH
	-	UNFUSED DISCONNECT SWITCH
	-	COMBINATION MOTOR STARTER/FUSED DISC.
	-	MOTOR STARTER
	-	MOTOR
	-	BATTERY PACK EMERGENCY LIGHT FIXTURE
	-	EXIT LIGHT, FACES-SHADED, CHEVRON-ARROW
S_x	-	SINGLE POLE SWITCH (x - INDICATES FIXTURE BEING CONTROLLED)
S_x^3	-	THREE WAY SWITCH (x - INDICATES FIXTURE BEING CONTROLLED)
S_x^4	-	FOUR WAY SWITCH (x - INDICATES FIXTURE BEING CONTROLLED)
S_x^{DIM}	-	DIMMER SWITCH (x - INDICATES FIXTURE BEING CONTROLLED)
S_M	-	MOTOR RATED TOGGLE SWITCH
S_K	-	KEY OPERATED SINGLE POLE SWITCH
S_v	-	SPEED CONTROLLER (FB0)
	-	DUPLEX RECEPTACLE
	-	DOUBLE DUPLEX RECEPTACLE
	-	SPECIAL RECEPTACLE
MD	-	SECURITY MOTION DETECTOR
KP	-	KEY PAD
PA	-	PANIC ALARM
	CB	CIRCUIT BREAKER
	-	ENCLOSED CIRCUIT BREAKER
20A 120V	-	FUSED SWITCH
OR	GND	GROUND AS PER LOCAL CODE
	-	GROUND BAR
OR	-	GROUND ROD
	-	TRANSFER SWITCH
OR T	XFMR	TRANSFORMER
	CT	CURRENT TRANSFORMER
	-	UTILITY POLE
WM	WM	WATER MAIN
B	-	BOILER BREAK GLASS STATION
	NC	NORMALLY CLOSED CONTACTS
	NO	NORMALLY OPEN CONTACTS
	CV	CONTROL VALVE
M	MD	MOTORIZED DAMPER
	SD OR CFSD	SMOKE DAMPER
UH	UH	UNIT HEATER
CL	CL	CLOCK
	A	AIR TERMINAL

SYMBOL	ABBREVIATION	DESCRIPTION
	A	AMPERE(S)
	AC	AIR CONDITIONER
	ACC	AIR CONDITIONER CONDENSER
	AFF	ABOVE FINISHED FLOOR
	AF	AMPERAGE OF FUSE
	AGL	ABOVE GRADE LEVEL
	AHU	AIR HANDLING UNIT
	AL	ALUMINIUM
	ARC	ARC FAULT INTERRUPTER
	AS	AMPERAGE OF SWITCH
	AWG	AMERICAN WIRE GAUGE
	BCW	BARE COPPER WIRE
	BLDG	BUILDING
	BMS	BUILDING MANAGEMENT SYSTEM
	C	CONDUIT
	CP	CONTROL PANEL
	CKT	CIRCUIT
	CLG	CEILING
	COL	COLUMN
	CU	COPPER
	CUH	CABINET UNIT HEATER
	DEM.	DEMOLISH AND REMOVE
	DISC	DISCONNECT
	DIM	DIMMER
	DWG	DRAWING
	EMT	ELECTRICAL METALLIC TUBING
	EM	EMERGENCY
	EX.	EXISTING TO REMAIN
	F	FLOOR
	FBO	FURNISHED BY OTHERS
	FC	FAN COIL UNIT
	GEN	GENERATOR
	GFI	GROUND FAULT INTERRUPTER
	HP	HORSEPOWER
	HVAC	HEATING VENTILATION AIR CONDITIONING
	IMC	INTERMEDIATE METAL CONDUIT
	KVA	KILO-VOLT-AMPERE
	KW	KILO-WATT
	MAX	MAXIMUM
	MCB	MAIN CIRCUIT BREAKER
	MIN	MINIMUM
	MLO	MAIN LUG ONLY
	NIC	NOT IN CONTRACT
	NL	NIGHT LIGHT
	NTS	NOT TO SCALE
	OH	OVERHEAD
	P	POLE
	PBO	PROVIDED BY OTHERS
	PNL	PANEL
	PVC	POLY VINYL CHLORIDE
	REL.	REMOVE AND RELOCATE
	REM.	REMOVE AND REINSTALL.
	RTU	ROOF TOP UNIT
	SCH	SCHEDULE
	SPD	SURGE PROTECTION DEVICE
	SW	SWITCH(ES)
	TELCO	TELEPHONE COMPANY
	TYP	TYPICAL
	UG	UNDERGROUND
	UON	UNLESS OTHERWISE NOTED
	UV	UNIT VENTILATOR
	VIF	VERIFY IN FIELD
	V	VOLT(S)
	VSD	VARIABLE SPEED DRIVE
	WG	WIRE GUARD
	WH	WATER HEATER
	WP	WEATHERPROOF

NOTES:
1.) ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE APPLICABLE FOR THIS PROJECT.
2.) SEE LIGHTING FIXTURE SCHEDULE FOR LIGHT FIXTURE SYMBOLS.

TYPICAL BRANCH CIRCUIT WIRING LEGEND

2-#12 & 1-#12 GND (1-1P-20A OR 1-1P-15A CB)

3-#12 & 1-#12 GND (3P-20A OR 3P-15A CB)

2-#12 & 1-#12 GND (2P-20A OR 2P-15A CB)

13 / 11 — CIRCUIT # / RECEPTACLE

15 — A / a — LIGHT FIXTURE TYPE / SWITCH CONTROL / LIGHT FIXTURE / CIRCUIT #

NOTES:
1. EACH 120V AND 277V CIRCUIT SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR. SHARED NEUTRAL HOMERUNS ARE NOT PERMITTED.
2. CONDUCTORS SHALL BE INCREASED FOR VOLTAGE DROP AND DERATING AS PER APPLICABLE ELECTRICAL CODE. FOR CIRCUITS THAT ARE BETWEEN 100' AND 150' IN LENGTH, PHASE AND NEUTRAL CONDUCTORS SHALL BE #10 AWG. FOR CIRCUITS THAT ARE BETWEEN 150' AND 225' IN LENGTH, PHASE AND NEUTRAL CONDUCTORS SHALL BE #8 AWG. FOR LENGTHS GREATER THAN 225' IN LENGTH, VERIFY CONDUCTOR SIZES WITH ENGINEER.

DEFINITION OF TERMS

1. WHEREVER IN THE CONTRACT DOCUMENTS THE WORD "CLIENT" IS USED, IT MUST BE UNDERSTOOD THAT "ROCKLAND COUNTY" IS INTENDED.
2. WHEREVER IN THE CONTRACT DOCUMENTS THE WORD "ENGINEER" IS USED, IT MUST BE UNDERSTOOD THAT "OLA CONSULTING ENGINEERS" IS INTENDED.
3. "WORK" MUST BE DEEMED TO CONSIST OF ALL LABOR AND OPERATIONS, TRANSPORTATION, HOISTING, MATERIALS, TOOLS, EQUIPMENT, SERVICES, INSPECTIONS, INVESTIGATIONS, COORDINATION AND SUPERVISION REQUIRED AND / OR REASONABLY NECESSARY TO PRODUCE THE CONSTRUCTION REQUIRED BY THE CONTRACT DOCUMENTS.
4. "FURNISH" MEANS THE DESIGN, FABRICATION, PURCHASE AND DELIVERY TO THE JOB SITE.
5. "INSTALL OR INSTALLATION" MEANS THE ACT OF PHYSICALLY PLACING, APPLYING, SETTING, ERECTING, ANCHORING, SECURING, ETC., CONSTRUCTION MATERIALS, EQUIPMENT, FURNISHINGS, APPLIANCES, AND SIMILAR ITEMS SPECIFIED AND FURNISHED AT THE JOB SITE. INSTALLATION OF SPECIFIED ITEMS MUST BE COMPLETE IN ALL RESPECTS.
6. "PROVIDE" MEANS TO FURNISH AND INSTALL CONSTRUCTION MATERIAL, EQUIPMENT, ETC. AS DEFINED ABOVE.
7. THE FOLLOWING ARE DEFINITIONS OF SHOP DRAWING STAMP ACTIONS:

A. "NO EXCEPTIONS TAKEN" MEANS THAT THE SHOP DRAWING IS CORRECT AS TO PERFORMANCE, CAPACITY, ETC. AND SUBSTANTIAL CONFORMANCE TO THE CONTRACT DRAWINGS AND SPECIFICATIONS. FABRICATION AND/OR PURCHASE MAY COMMENCE.

B. "MAKE CORRECTIONS NOTED" MEANS THAT THE SHOP DRAWING IS CORRECT AS TO PERFORMANCE, CAPACITY, ETC. AND SUBSTANTIAL CONFORMANCE TO THE CONTRACT DRAWINGS AND/OR SPECIFICATIONS, SUBJECT TO AND IN COMPLIANCE WITH THE ANNOTATIONS AND/OR CORRECTIONS INDICATED ON THE SHOP DRAWING. FABRICATION AND/OR PURCHASE MAY COMMENCE.

C. "AMEND AND RESUBMIT" MEANS THAT THE COMMENTS AND/OR CORRECTION ARE SO EXTENSIVE AND IMPORTANT THAT THE REVIEWER WANTS TO SEE HOW THE COMMENTS AND/OR CORRECTIONS ARE RESOLVED PRIOR TO RELEASE FOR FABRICATION AND/OR PURCHASE. FABRICATIONS AND/OR PURCHASE MAY NOT COMMENCE.

D. "REJECTED" MEANS THAT THE SHOP DRAWING DOES NOT COMPLY OR CONFORM TO THE CONTRACT DRAWINGS AND/OR SPECIFICATIONS. FABRICATION AND/OR PURCHASE MAY NOT COMMENCE.

GENERAL NOTES

1. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON) EXISTING TO REMAIN (EX.).
2. THE DRAWINGS ARE TO BE CONSIDERED SCHEMATIC ONLY AND DO NOT NECESSARILY SHOW THE EXACT LOCATIONS AND DETAILS OF THE WORK TO BE INSTALLED.
3. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING OF WORK AND COORDINATE NEW WORK.
4. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND PAYING ALL FEES ASSOCIATED WITH THIS WORK INCLUDING FILING WITH THE UTILITY COMPANY (AS REQUIRED), AND WITH LOCAL AUTHORITY HAVING JURISDICTION.
5. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO HIRE A THIRD PARTY ELECTRICAL INSPECTION AGENCY TO PROVIDE UL INSPECTIONS AND SUBMIT A CERTIFICATE OF INSPECTION PRIOR TO FINAL REQUEST FOR PAYMENT.
6. ALL CONDUCTORS SHALL BE COPPER UON "ON DRAWINGS".
7. ELECTRONIC FILES OF THE MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS ARE AVAILABLE TO THE CONTRACTOR. THE ENGINEER MAY GRANT THE CONTRACTOR A LIMITED LICENSE TO MAKE A DERIVATIVE WORK OF THE DATABASE FOR THE PURPOSE OF SHOP DRAWINGS, SUBMITTALS AND AS-BUILT DRAWINGS. UPON REQUEST, THE ENGINEER SHALL PROVIDE A RELEASE FORM THAT MUST BE SIGNED AND RETURNED BY THE CONTRACTOR PRIOR TO RELEASE OF THE ELECTRONIC FILES.
8. CIRCUIT NUMBERS ARE FOR INFORMATION PURPOSES ONLY. ACTUAL CIRCUIT NUMBERS SHALL BE DETERMINED IN THE FIELD.
9. UNLESS OTHERWISE NOTED, DISCONNECT SWITCHES, STARTERS, HOAS AND MOTOR RATED TOGGLE SWITCHES FOR MECHANICAL PUMPS, CABINET AND UNIT HEATERS, RETURN FANS, ROOF FANS, VAV BOXES, COMPRESSORS, FAN COIL UNITS, AIR HANDLERS AND CONDENSERS SHALL BEE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACTOR.
10. CORE DRILLING OR TRENCHING THROUGH AN EXISTING FLOOR SLAB, WHEN REQUIRED, SHALL BE COORDINATED WITH THE OWNER. FLOOR SLABS SHALL BE RADAR SCANNED PRIOR TO CORE DRILLING OR TRENCHING. ALL WORK, INCLUDING CORE DRILLING, RADAR SCAN, INSTALLATION OF FIRE STOPPING, & CONDUIT/CABLE INSTALLATION SHALL BE PERFORMED DURING NON-BUSINESS HOURS AND INCLUDED IN BASE BID. USE EXTREME CAUTION DURING ANY CUTTING OPERATION TO AVOID DAMAGE TO EXISTING EQUIPMENT/SYSTEMS. ANY ITEMS DAMAGED AS A RESULT OF CORE DRILLING SHALL BE REPAIRED AT NO COST TO THE CLIENT. ALL CORES SHALL BE FIRE SEALED.
11. WHERE GFI RECEPTACLES ARE CIRCUITED WITH GENERAL CONVENIENCE RECEPTACLES, THE GFI RECEPTACLE SHALL BE THE LAST DEVICE ON THE CIRCUIT.
12. INSTALL CONDUIT EXPANSION FITTINGS AT ALL LOCATIONS WHERE CONDUITS CROSS BUILDING OR STRUCTURE EXPANSION JOINTS.
13. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, PAINTING, AND FINAL RESTORATION REQUIRED TO FACILITATE THE DEMOLITION AND INSTALLATION OF ALL ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO PANELBOARDS, CONDUITS, WIRING, DEVICES, FIXTURES, ETC. INCLUDING ABOVE CEILINGS. CONTRACTOR TO REMOVE AND REPLACE CEILINGS, AND OPEN AND PATCH WALLS, AS REQUIRED TO EXECUTE THE ELECTRICAL WORK.
14. ALL CONDUITS SHALL BE RECESSED IN NEW WALLS. SURFACE MOUNTED CONDUITS WILL ONLY BE ACCEPTED IN EXISTING AREAS WHERE ABSOLUTELY NECESSARY.
15. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING CEILINGS IN AREAS OF WORK WHERE THE CEILINGS ARE DUE TO REMAIN. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING TO REMAIN CEILINGS OR CEILING TILES CAUSE BY THE ELECTRICAL SCOPE OF WORK.
16. EACH DUPLEX AND QUAD RECEPTACLE SHALL BE LABELED WITH THE CIRCUIT NUMBER WHICH IT SERVES. ALPHANUMERICS TO BE 1/8" HIGH AND BLACK ON CLEAR BACKGROUND. LABELS SHALL BE SELF ADHESIVE. IDENTIFY ASSOCIATED PANEL AND CIRCUIT NUMBER.
17. ALL CONDUCTORS INSTALLED BETWEEN VFDS AND ASSOCIATED MOTORS SHALL BE XHHW-2, 1000V IN RGS, IMC, EMT FMC OR LFMC.

DEMOLITION NOTES

1. ALL EQUIPMENT SHALL BE DISCONNECTED AND REMOVED BACK TO POWER SOURCE ORIGINATION UNLESS OTHERWISE NOTED (UON) EXISTING TO REMAIN (EX.).
2. CONTRACTOR SHALL VERIFY EXTENT OF DEMOLITION WORK IN THE FIELD PRIOR TO BID AND SHALL INCLUDE ALL LABOR AND MATERIALS IN BASE BID INCLUDING ALL TEMPORARY CONNECTIONS, CONDUIT AND WIRE IN ORDER TO ACCOMMODATE CONSTRUCTION AND PROVIDE CONTINUOUS SERVICE TO DEVICES AND SYSTEMS TO REMAIN, TEMPORARY AND PERMANENTLY. WORK REQUIRING THE SHUT-DOWN OF THE BUILDING POWER SHALL BE PERFORMED DURING OVERTIME AND SHALL BE INCLUDED IN BASE BID.
3. CIRCUIT BREAKER, DISCONNECT SWITCHS, FUSES, CONDUIT AND CONDUCTOR SIZES INDICATED SHALL BE FIELD VERIFIED PRIOR TO BID.
4. ALL EXISTING ELECTRICAL EQUIPMENT NO LONGER IN USE, SUCH AS DISCONNECT SWITCHES, MOTOR CONTROLLERS, MOTOR STARTER PANELS, ETC. SHALL BE REMOVED UON.
5. ALL DISCONNECTED & REMOVED EXISTING ELECTRICAL ITEMS THAT ARE NOT BEING REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF AS DIRECTED.
6. THE CONTRACTOR SHALL INCLUDE IN THE BASE BID FOR ALL MATERIAL & LABOR REQUIRED FOR THE EXTENSIONS, REROUTING & RELOCATION OF EXISTING SYSTEM COMPONENTS, EQUIPMENT, WIRING, CONDUITS & CABLING SO AS TO MAINTAIN OPERATION OF ALL SYSTEMS THROUGHOUT THE BUILDING DURING DEMOLITION & CONSTRUCTION PHASES.

LIGHTNING PROTECTION SYSTEM NOTES:

1.) THE FOLLOWING IS A PERFORMANCE SPECIFICATION OF THE LIGHTNING PROTECTION SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO HIRE AN ORGANIZATION THAT IS UL APPROVED (MASTER LABEL) TO MODIFY SUCH SYSTEMS. DESIGN SHALL BE FORWARDED TO THE ENGINEER AS A SHOP DRAWING FOR APPROVAL PRIOR TO CONSTRUCTION.

2.) A SYSTEM OF LIGHTNING PROTECTION SHALL BE PROVIDED AND INSTALLED IN COMPLIANCE WITH THE PROVISIONS OF THE LATEST "CODE OF PROTECTION AGAINST LIGHTNING" FOR BUILDINGS AS ADOPTED BY THE NATIONAL FIRE PROTECTION ASSOCIATION AND THE UNDERWRITERS' LABORATORIES, INC. FOR A MASTER LABEL SYSTEM.

IF ANY DEPARTURES FROM THE CONTRACTOR DOCUMENTS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND THE REASONS THEREFORE SHALL BE SUBMITTED AS SOON AS PRACTICABLE TO THE ENGINEER FOR APPROVAL. NO SUCH DEPARTURES SHALL BE MADE WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER AND THE ARCHITECT. ALSO, THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED BY A LIGHTNING PROTECTION CONTRACTOR WHO SPECIALIZES IN THIS FIELD.

3.) MATERIALS
THE LIGHTNING PROTECTION EQUIPMENT SPECIFICATION SHALL BE BASED ON EQUIPMENT MANUFACTURED BY HEARY BROS. LIGHTNING PROTECTION CO., INC. OF MOORE ROAD, SPRINVILLE, NEW YORK, 14141, OR EQUAL TO. ALL MATERIALS SHALL COMPLY IN WEIGHT, SIZE, AND COMPOSITION WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES, INC. AND THE NATIONAL FIRE PROTECTION ASSOCIATION CODE RELATING TO THIS TYPE OF STRUCTURE.

4.) AIR TERMINALS
AIR TERMINALS SHALL BE 1/2" X 10" SOLID ALUMINUM AND SHALL EXTEND AT LEAST 18" ABOVE THE OBJECT TO BE PROTECTED. ALL AIR TERMINAL BASES SHALL BE CAST ALUMINUM WITH STAINLESS STEEL BOLT-PRESSURE CABLE CONNECTORS. THE AIR TERMINALS SHOULD BE SPACED SO AS NOT TO EXCEED 20 FEET APART AROUND THE OUTSIDE PERMITER OF THE ROOF OR THE RIDGE AND NOT OVER 50 FEET APART THROUGH THE CENTER OF FLAT ROOF AREAS. THE AIR TERMINALS IN THE CENTER ROOF AREA SHALL BE 1/2" X 24" SOLID ALUMINUM WITH A PROPER BRACE. ALL AIR TERMINAL BASES FOR FLAT ROOF AREAS SHALL BE OF THE ADHESIVE TYPE.

5.) CONDUCTORS
CONDUCTORS SHALL CONSIST OF U.L. LISTED 28 STRANDS OF 14 GAUGE ALUMINUM WIRE WEIGHING 114 LBS. PER 1000 FEET AND INSTALLED IN ACCORDANCE WITH THE U.L. CODE. A PERIMETER CABLE SHALL BE INSTALLED AROUND THE ENTIRE MAIN ROOF AND ALL HEAT REJECTION EQUIPMENT. EACH PERIMTER CABLE SHALL BE CONNECTED TO DOWN LEADS, PROVIDING A TWO-WAY PATH FROM GROUND TO EACH AIR TERMINAL. ALL CENTER ROOF AIR TERMINALS SHALL BE INTERCONNECTED WITH CONDUCTORS TO THE OUTSIDE PERIMETER CABLE. CONDUCTORS ON THE FLAT ROOF AREAS MAY BE RUN EXPOSED. GROUND CONNECTION SHALL BE MADE AROUND THE PERIMETER OF EACH ROOF AND TO THE MAIN DOWN CONDUCTOR AT THE MAXIMUM OF 100'-0" ON CENTERS.

6.) CONCEALED CONDUCTORS
ALL CONCEALED CONDUCTORS SHALL BE INSTALLED IN SCHEDULE 40, 1" PVC CONDUIT. CONDUIT TO BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR, ALL DOWN CONDUCTORS SHALL RUN INSIDE WALLS OF THE BUILDING THROUGH THE 1" PVC CONDUIT.

7.) FASTENERS
CONDUCTOR FASTENERS SHALL BE AN APPROVED TYPE NON-CORROSIVE METAL, HAVE AMPLE STRENGTH TO SUPPORT CONDUCTORS, AND SHALL BE SPACED NOT TO EXCEED 3'-0" CENTERS, MASONRY TYPE CABLE FASTENERS SPACED EVERY 3'-0" ON MASONRY.

8.) ROOF PENETRATION
WHEREVER THE CONDUITS PENETRATES THE ROOF, COPPER PITCH PANS SHALL BE FURNISHED BY THE LIGHTNING PROTECTION CONTRACTOR AND INSTALLED BY THE ROOFING CONTRACTOR. WOOD NAILING BLOCKS SHALL BE FURNISHED AND INSTALLED BY THE ROOFING CONTRACTOR. ALL PATCHING AND MASONRY WORK SHALL BE FURNISHED AND INSTALLED BY THE ROOFING CONTRACTOR.

9.) DOWN CONDUCTORS
BUILDINGS THAT ARE OF REINFORCED CONCRETE OR WALL BEARING STRUCTURES, THE CONCEALED DOWN CONDUCTORS SHALL BE INSTALLED IN SCHEDULE 40, 1" P.V.C. CONDUIT. EACH PERIMETER ROOF CABLE SHALL BE CONNECTED AT LEAST TWO (2) DOWN LEADS. THE AVERAGE DISTANCE BETWEEN DOWN LEADS SHALL NOT EXCEED 100 FEET IRREGULARLY SHAPED STRUCTURES MAY REQUIRE EXTRA DOWN CONDUCTORS TO PROVIDE A TWO-WAY PATH TO GROUND FROM EACH AIR TERMINAL.

10.) CABLE CONNECTORS
ALL CABLE CONNECTORS SHALL BE CAST ALUMINUM WITH SCREW-PRESSURE TYPE STAINLESS STEEL BOLTS AND NUTS.

11.) INTERCONNNECTION OF METALS
ALL METAL BODIES WITHIN 6 FEET OF THE CONDUCTOR SHALL BE BONDED TO THE SYSTEM WITH APPROVED FITTINGS AND CONDUCTOR. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE MADE WITH APPROVED BIMETALLIC CONNECTIONS.

12A.) BONDING OF ALL METALLIC OBJECTS AND SYSTEMS AT ROOF LEVELS AND ELSEWHERE ON THE STRUCTURE SHALL BE COMPLETE. PRIMARY BONDS FOR METAL BODIES OF CONDUCTANCE SHALL BE BONDED WITH APPROPRIATE FITTINGS AND FULL-SIZE CONDUCTOR, AND SHALL CONSIST OF, BUT NOT BE LIMITED TO, THE FOLLOWING: ROOF EXHAUST FANS, HVAC UNITS WITH RELATED PIPING DUCTWORK, EXHAUST VENTS AND ANY OTHER ROOF PIPING SYSTEMS, COOLING TOWERS, AND RAIL SYSTEMS. WINDOW WASHING TRACKS, ANTENNA MAST FOR T.V., RADIO OR MICROWAVE FLAG POLES, ROOF HANDRAILS AND/OR DECORATIVE SCREENS, ROOF LADDERS, SKYLIGHTS, METAL PLUMBING STACKS, ETC. EXTERIOR ARCHITECTURAL METAL FASCIA AND/OR CURTAIN WALLS OR MULLIONS WHICH EXTEND THE FULL HEIGHT OF THE STRUCTURE SHALL ALSO BE BONDED, IF NOT INHERENTLY BONDED THRU THE BUILDING FRAME.

12B.) METAL BODIES OF INDUCTANCE LOCATED WITHING 6 FEET OF A CONDUCTOR OR OBJECT WITH SECONDARY BONDS SHALL BE BONDED WITH SECONDARY CABLE AND FITTINGS. TYPICAL OF THESE ARE: ROOF FLASHINGS, PARAPET COPING CAPS, GRAVEL GUARDS, ISOLATED METAL BUILDING PANELS OR SIDING, ROOF DRAINS, DOWN SPOUTS, ROOF ISULATION VENTS, AND ANY OTHER SIZEABLE MISCELLANEOUS METALS, ETC.

13.) GROUNDING
GROUNDING TERMINATIONS SHALL BE MADE TO THE #4/0 AWG COPPER GROUND RING LOCATED AT THE BASE OF THE STRUCTURE. GROUND CONNECTIONS SHALL BE MADE AROUND THE PERIMETER OF THE STRUCTURE, AND IN NO CASE SHALL AVERAGE OVER 100'-0" APART. GROUND TERMINALS SHALL BE 3/4 " IN DIAMETER AND SHALL BE DRIVEN TO A MINIMUM DEPTH OF 10 FEET AND MORE, IF NECESSARY, TO REACH PERMANENT MOISTURE. ONE GROUND SHALL HAVE CONNECTION TO THE WATER SYSTEM WHERE THE WATER SUPPLY ENTERS THE BUILDING - IN ADDITION TO ARTIFICIAL GROUND. IN CASE OF ROCK LEDGE OR OTHER CONDITIONS MAKING IT IMPOSSIBLE TO COMPLY WITH THE ABOVE, TRENCHING OR A COPPER GROUND PLATE WILL PERMITTED; PROVIDING IT WILL MEET THE UNDERWRITERS' LABORATORIES, INC. REQUIREMENTS.

14.) COMMON GROUNDING
COMMON GROUNDS BETWEEN THE LIGHTNING PROTECTION SYSTEM AND THE ELECTRIC SERVICE ENTRANCE WIRES BE MADE BY THE ELECTRICAL CONTRACTOR, AS SHOWN IN THE DRAWINGS AND PER THE SPECIFICATIONS.

15.) UNDERWRITER'S LABORATORIES, INC MASTER LABEL SHALL BE FURNISHED AS EVIDENCE THAT THE INSTALLTION HAS MET WITH U.L. 96A CODE REQUIREMENTS. SHOP DRAWINGS IN DETAIL AND CATALOG CUTS SHALL BE SUBMITTED FOR APPROVAL BY THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION OF THE SYSTEM.

16.) THE LIGHTNING PROTECTION CONTRACTOR SHALL FURNISH OWNER AND ENGINEER WITH SYSTEM SHOP DRAWINGS FOR REVIEW. INCLUDE LAYOUT AND ALL COMPONENETS.

17.) THE ELECTRICAL CONTRACTOR SHALL INSTALL THE LIGHTNING PROTECTION SYSTEM PER THE LIGHTNING PROTECTION CONTRACTOR'S SHOP DRAWINGS, (APPROVED SET).

OLA CONSULTING ENGINEERS

OLA Consulting Engineers

**50 Broadway,
Hawthorne, NY 10532
914.747.2800**

**8 West 38th Street,
Suite 900
New York, NY 10017
646.849.4110**

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Facilities Management

**Robert H. Gruffi, P.E., LEED AP
Director Facilities Management**

**Rockland County Courthouse
1 South Main Street
New City, NY 10956**

NO.	DESCRIPTION	DATE
2	ISSUED FOR BID	09.09.2024
1	ISSUE FOR PERMIT	04.05.2024

PROJECT

CAPITAL PROJECT 1519
GOVERNMENT CENTER BUILDING
IMPROVEMENTS COURTHOSE
COOLING TOWER REPLACEMENT

1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING TITLE

ELECTRICAL
ABBREVIATIONS, SYMBOLS
AND NOTES

SEAL

SCALE	1" = 1'-0"
PROJECT NO.	NRCK0018
DRAWN BY	GD
DRAWING NO.	E0.1
CHECKED BY	JF
DATE	2024.04.05

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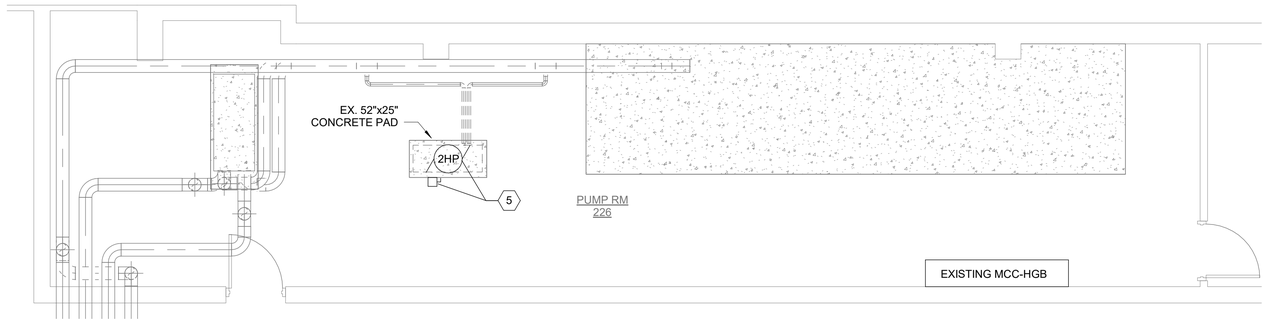
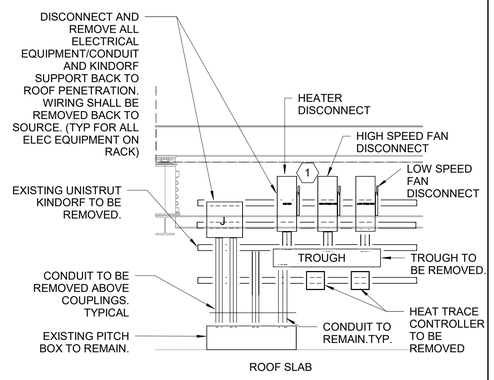


3 LEVEL 02 ELECTRICAL DEMOLITION PLAN

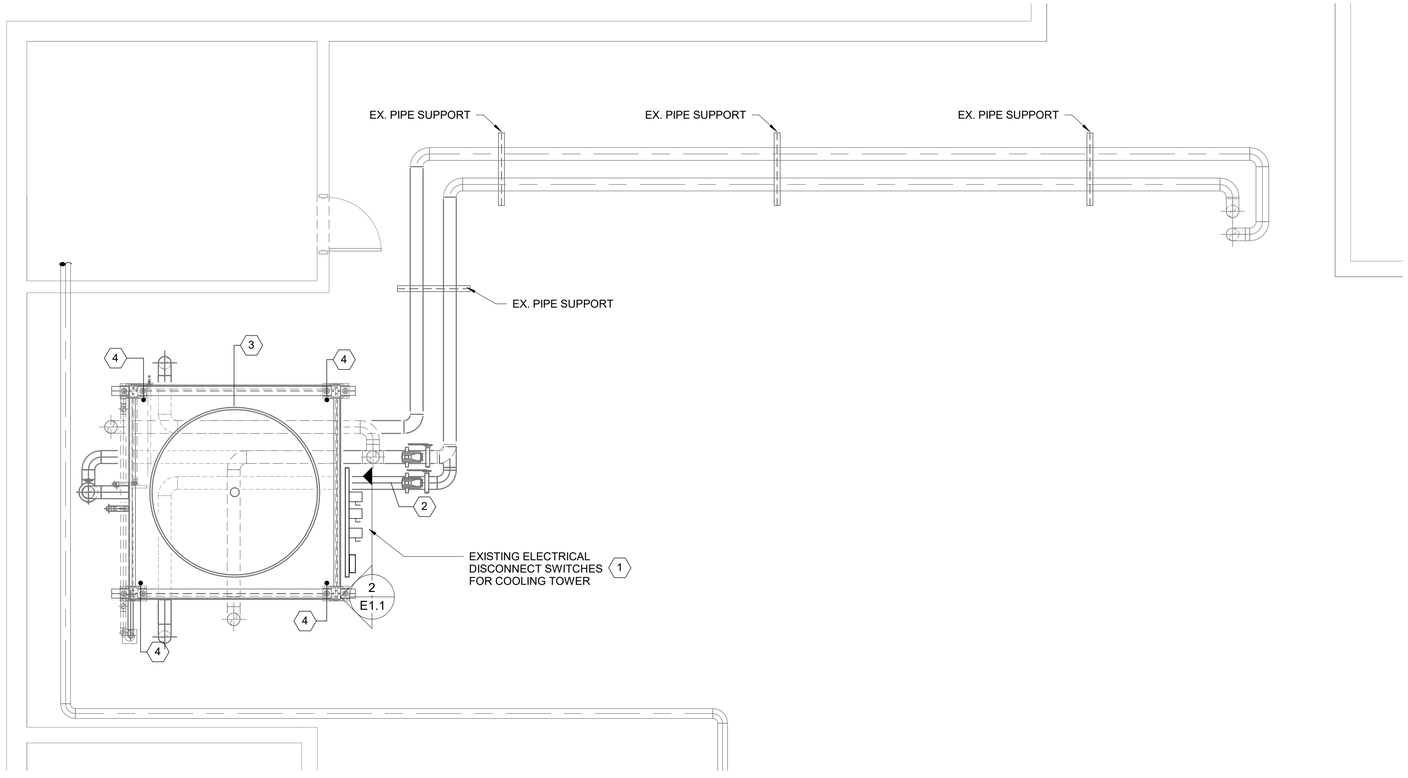
SCALE: 1/4" = 1'-0"

NORTH



2 Section 2

SCALE: NONE



1 ROOF ELECTRICAL DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

NORTH

NOTES

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2. ALL ABANDONED AND UNUSED EQUIPMENT, INCLUDING, BUT NOT LIMITED TO PIPING, DUCTWORK, AND TERMINAL UNITS SHALL BE REMOVED.
3. COORDINATE ALL SHUTDOWNS WITH BUILDING FACILITIES, OWNER, AND TENANTS.

KEYNOTES

1. DISCONNECT AND REMOVE ALL DISCONNECT SWITCHES ON KINDORF UNISTRUT RACK. ALL ASSOCIATED WIRING SHALL BE DISCONNECTED AND REMOVED BACK TO SOURCE. EXISTING EXPOSED CONDUIT TO BE REMOVED TO COUPLINGS ABOVE PITCH BOX ON ROOF. KINDORF UNISTRUT TO BE REMOVED.
2. DISCONNECT AND REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE ASSOCIATED WITH HEAT TRACE
3. DISCONNECT AND REMOVE ALL WIRING AND CONDUIT ASSOCIATED TO COOLING TOWER BACK TO SOURCE.
4. DISCONNECT AND REMOVE ALL ASSOCIATED LIGHTNING PROTECTION AND GROUND WIRING ON EXISTING COOLING TOWER TO BE DEMOLISHED.
5. DISCONNECT WATER FILTER SYSTEM PUMP WSF-1. REMOVE LOCAL DISCONNECT AND WIRING BACK TO SOURCE. CONDUIT TO REMAIN.

OLA Consulting Engineers

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914.747.2800

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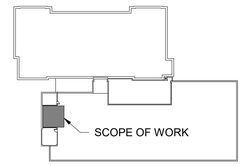

KEYPLAN

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PROJECT

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1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING TITLE

ELECTRICAL DEMOLITION PLANS

SEAL	SCALE	PROJECT NO.
	As indicated	NRCK0018
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	CHECKED BY: JF	E1.1
	DATE: 2024.04.05	

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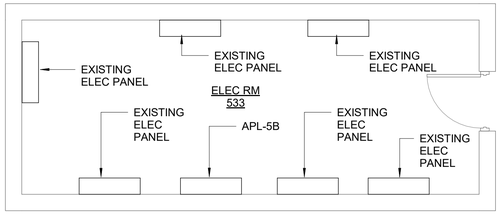
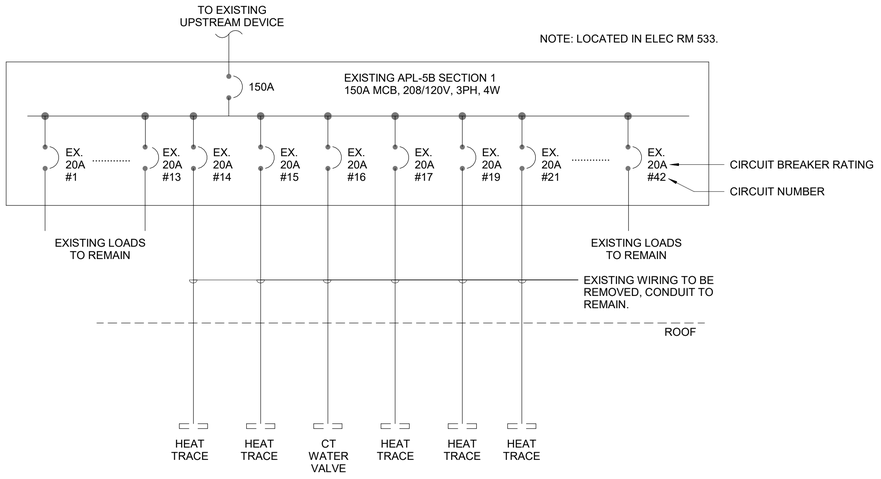
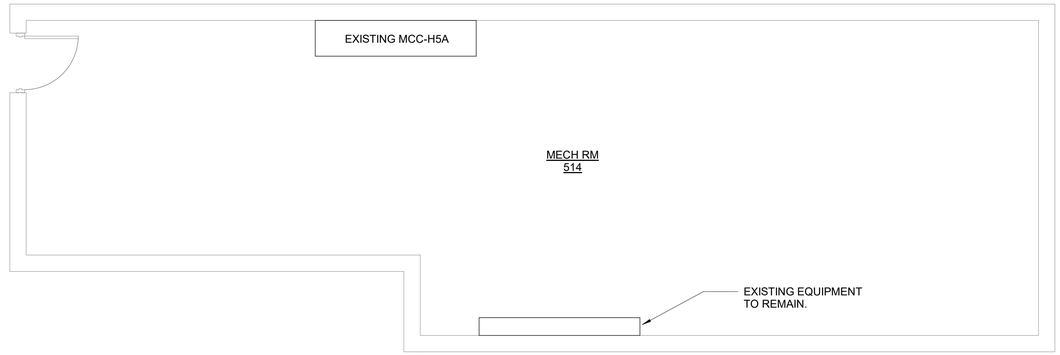


5 LEVEL 05 ELECTRICAL ROOM 533 DEMOLITION PLAN

SCALE: NONE



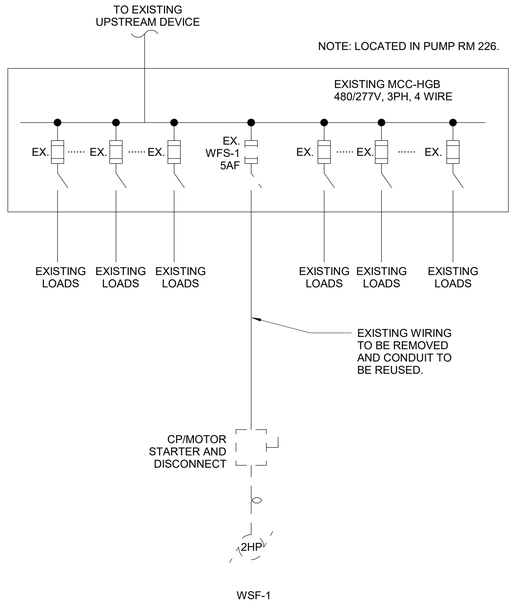


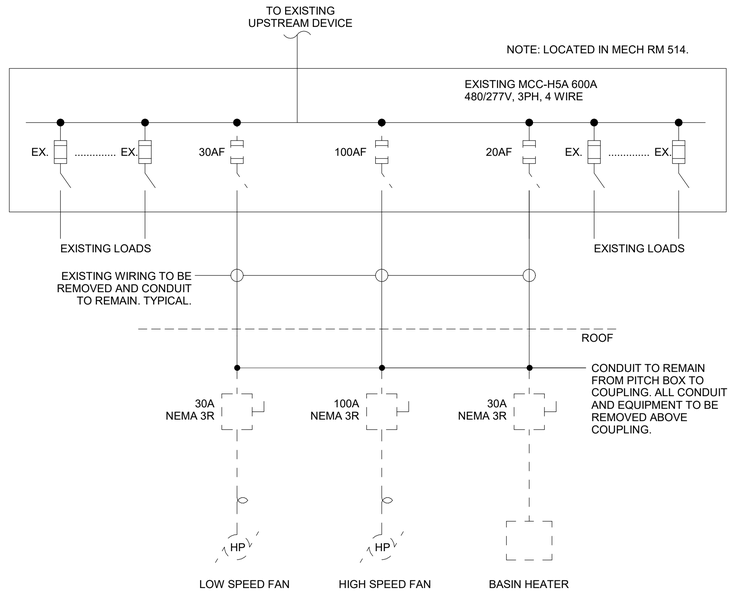
4 APL-5B SINGLE LINE DEMOLITION

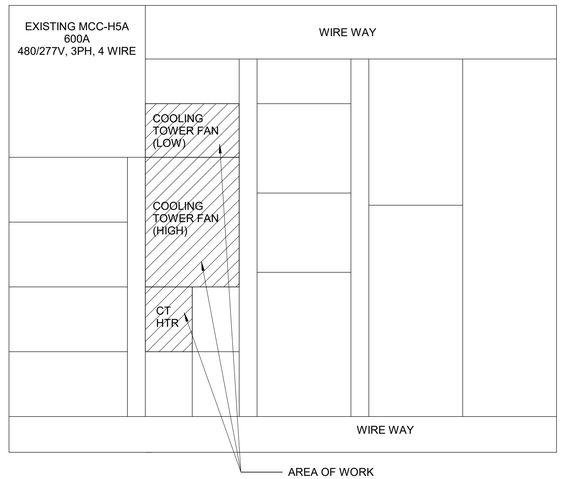
SCALE: NONE

2 LEVEL 05 ELECTRICAL DEMOLITION PLAN

SCALE: NONE







3 MCC-HGB SINGLE LINE DEMOLITION

SCALE: NONE

1 MCC-5HA SINGLE LINE AND ELEVATION DEMOLITION

SCALE: NONE

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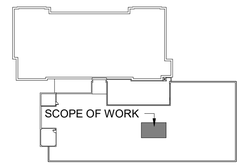

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PROJECT

CAPITAL PROJECT 1519
GOVERNMENT CENTER BUILDING IMPROVEMENTS COURTHOSE COOLING TOWER REPLACEMENT

1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING TITLE

ELECTRICAL DEMOLITION SINGLE LINE DIAGRAMS AND PLAN

SEAL	SCALE	PROJECT NO.
	As indicated	NRCK0018
	DRAWN BY: GD	DRAWING NO.
	CHECKED BY: JF	E1.2
	DATE: 2024.04.05	

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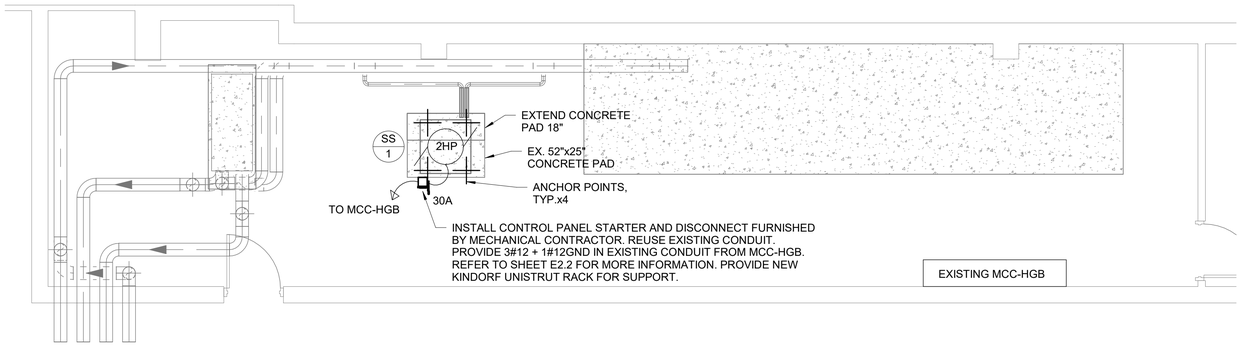
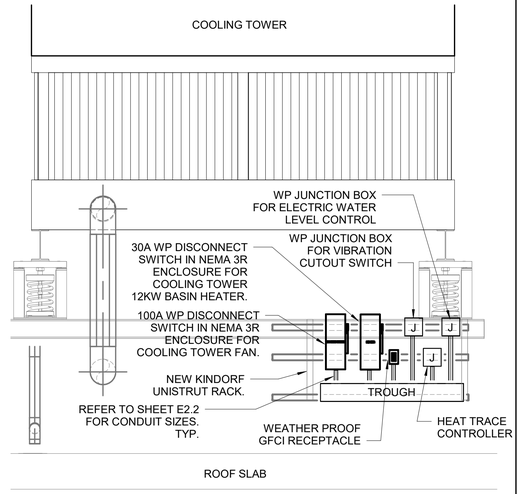


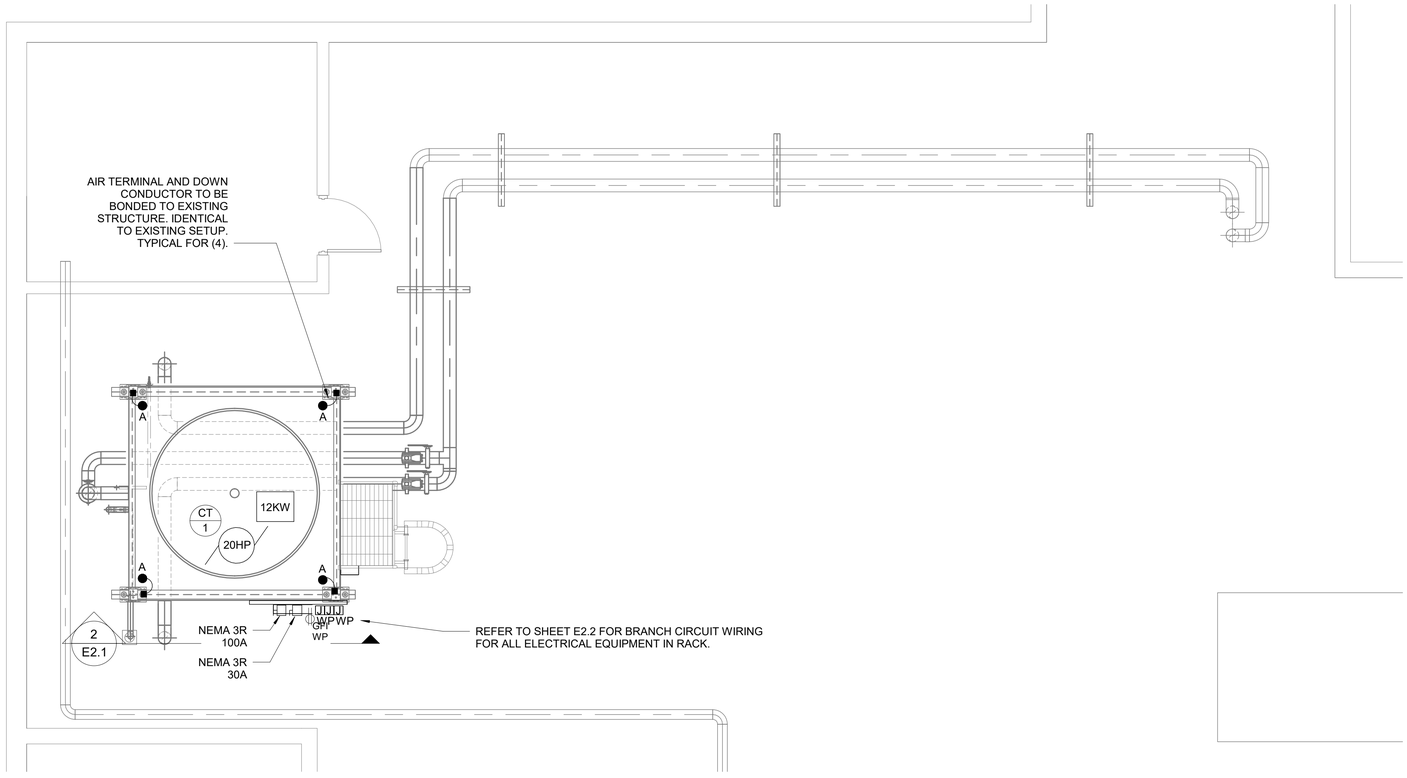
NORTH 3 LEVEL 02 ELECTRICAL NEW WORK PLAN

SCALE: 1/4" = 1'-0"



2 ELECTRICAL NEW WORK

SCALE: 1/2" = 1'-0"



NORTH 1 ROOF ELECTRICAL NEW WORK PLAN

SCALE: 1/4" = 1'-0"

NOTES

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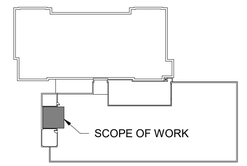

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CAPITAL PROJECT 1519
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IMPROVEMENTS COURTHOSE
COOLING TOWER REPLACEMENT

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DRAWING TITLE

ELECTRICAL NEW WORK PLANS

SEAL	SCALE	PROJECT NO.
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	CHECKED BY: JF	E2.1
	DATE: 2024.04.05	

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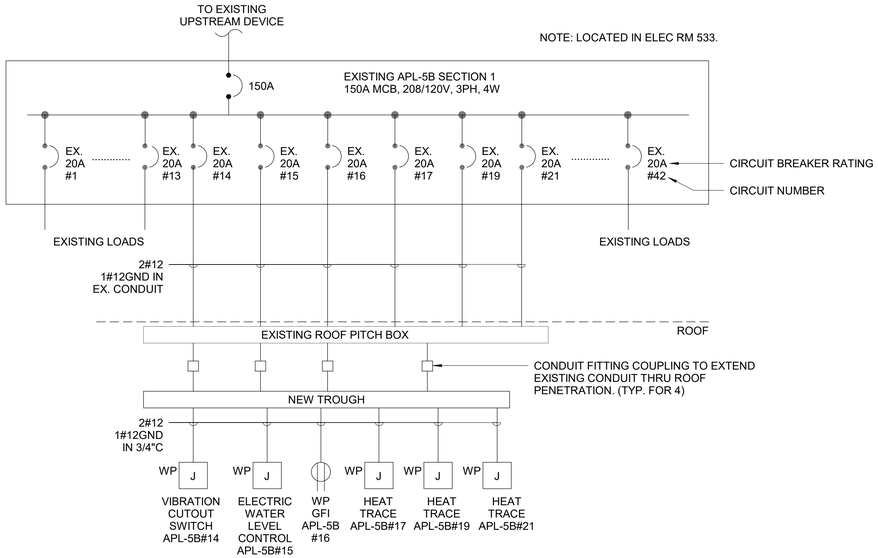
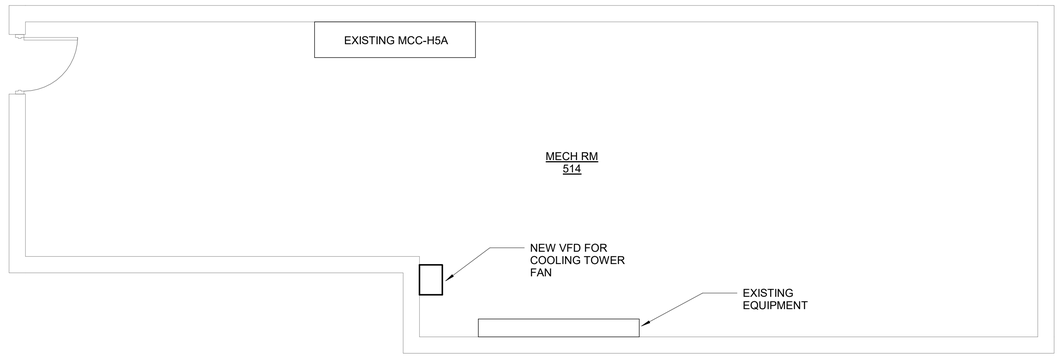


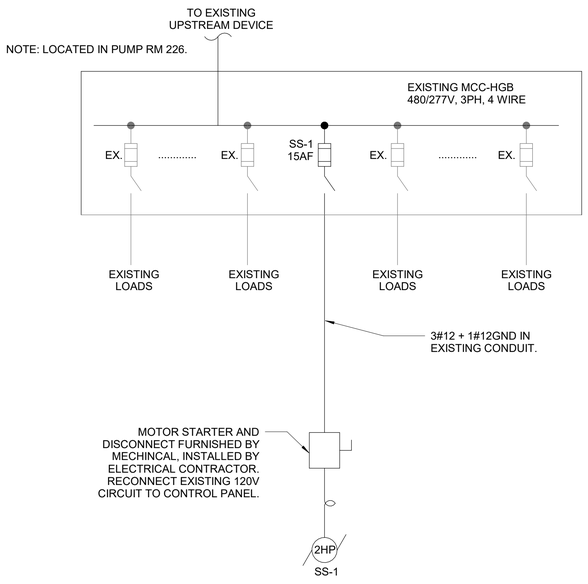
4 APL-5B SINGLE LINE NEW WORK

SCALE: NONE



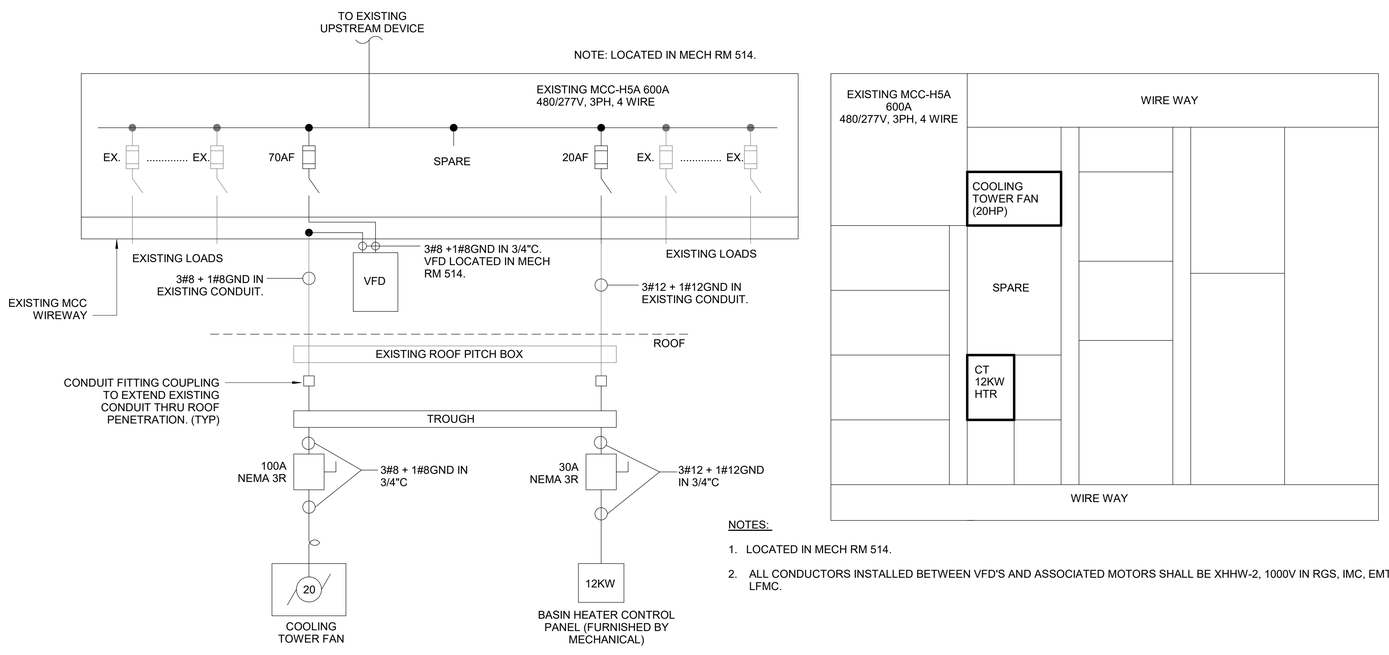
2 LEVEL 05 ELECTRICAL NEW WORK PLAN

SCALE: NONE



3 MCC-HGB SINGLE LINE NEW WORK

SCALE: NONE



NOTES:

1. LOCATED IN MECH RM 514.
2. ALL CONDUCTORS INSTALLED BETWEEN VFD'S AND ASSOCIATED MOTORS SHALL BE XHHW-2, 1000V IN RGS, IMC, EMT FMC OF LFMC.

1 MCC-5HA SINGLE LINE AND ELEVATION NEW WORK

SCALE: NONE

OLA Consulting Engineers

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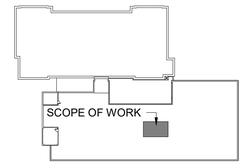

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DRAWING TITLE

ELECTRICAL NEW WORK SINGLE LINE DIAGRAMS AND PLAN

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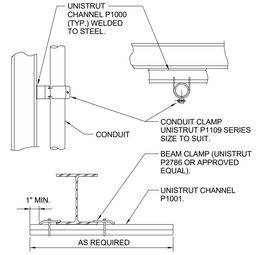
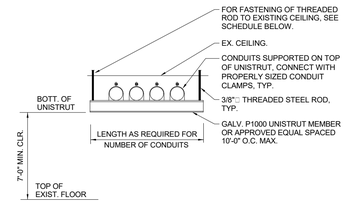
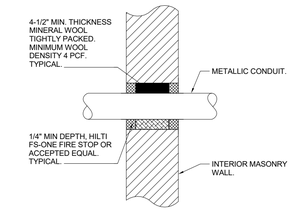


10 STRUCTURAL STEEL CONDUIT SUPPORTED FROM
SCALE: NONE



CEILING CONSTRUCTION	ANCHOR TYPE	EMBEDMENT
NORMAL WT. CONC	HILTI HDI DROP-IN ANCHOR	1" MIN.
CINDER CONCRETE	HILTI KWIK BOLT II	3" MIN.
HOLLOW CONSTRUCTION	TOGGLE BOLTS	NA

7 TRAPESE SUPPORT DETAIL
SCALE: NONE



3 TYPICAL INTERIOR MASONRY WALL CONDUIT PENETRATION DETAIL
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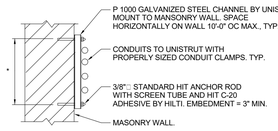
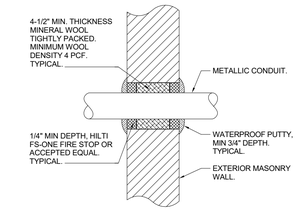


* LENGTH AS REQUIRED FOR NUMBER OF CONDUITS

6 TYPICAL CONDUIT SUPPORT ON MASONRY DETAIL
SCALE: NONE



2 TYPICAL EXTERIOR MASONRY WALL ABOVE GRADE CONDUIT PENETRATION DETAIL
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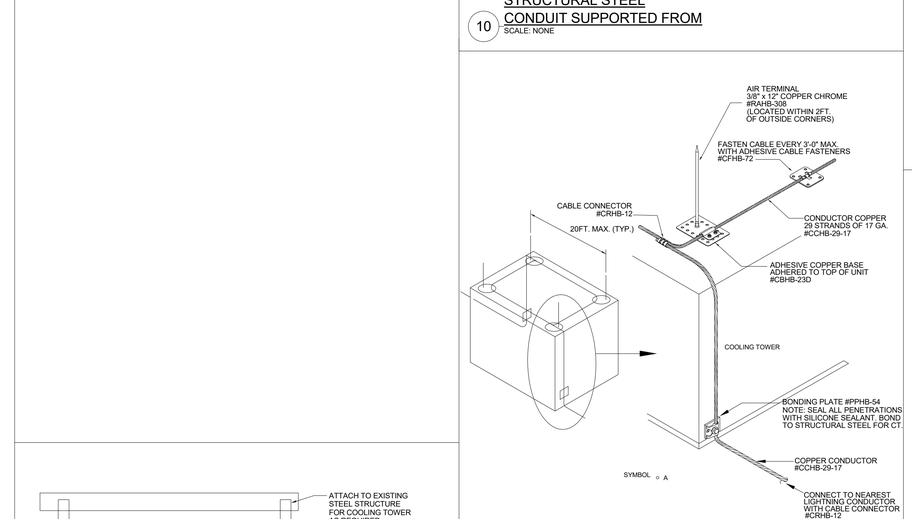
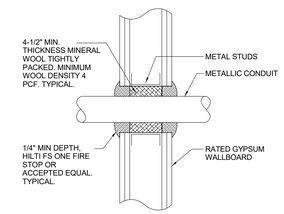


9 LIGHTNING PROTECTION AT COOLING TOWER
SCALE: NONE



5 WALL PENETRATION DETAIL
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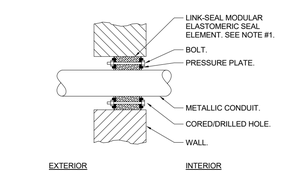
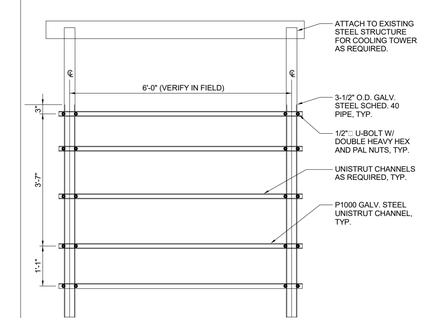


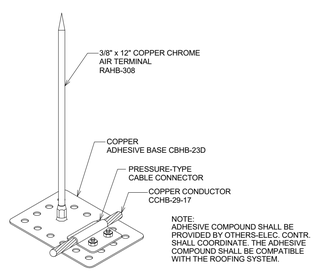
NOTES:
1. SEAL ASSEMBLY BASED ON MODEL "C" LINK-SEAL MODULAR SEAL, WITH EPDM SEAL ELEMENT, REINFORCED NYLON POLYMER PRESSURE PLATES, STEEL WITH 2-PART ZINC DICHROMATE & CORROSION INHIBITING COATING NUTS AND BOLTS AND WITH A OPERATING TEMPERATURE RANGE OF -40°F TO +250°F.
2. PROVIDE AND INSTALL TWO SEALS WHEN PENETRATED WALL THICKNESS IS GREATER THAN 12".
3. PROVIDE SCHEDULE 80 WALL SLEEVE FOR NEW WALL CONSTRUCTION PER MANUFACTURER'S REQUIREMENTS.

1 TYPICAL EXTERIOR MASONRY WALL BELOW GRADE CONDUIT PENETRATION DETAIL
SCALE: NONE

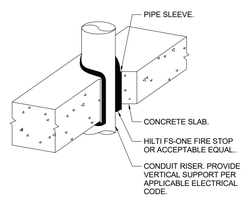


11 EQUIPMENT SUPPORT FRAME DETAIL
SCALE: NONE

NOTE:
1.) DESIGN TYPICAL FOR MOUNTING ALL WALL MOUNTED POWER EQUIPMENT.



8 ADHESIVE AIR TERMINAL BASE
SCALE: NONE



4 TYPICAL VERTICAL CONDUIT PENETRATION DETAIL
SCALE: NONE

OLA Consulting Engineers

50 Broadway,
Hawthorne, NY 10532
914.747.2800

8 West 38th Street,
Suite 900
New York, NY 10017
646.849.4110

olace.com

CLIENT

Rockland County
Facilities Management
Robert H. Gruffi, P.E., LEED AP
Director Facilities Management
Rockland County Courthouse
1 South Main Street
New City, NY 10956

NO.	DESCRIPTION	DATE
2	ISSUED FOR BID	09.09.2024
1	ISSUE FOR PERMIT	04.05.2024

PROJECT

CAPITAL PROJECT 1519
GOVERNMENT CENTER BUILDING IMPROVEMENTS COURTHOSE COOLING TOWER REPLACEMENT

1 SOUTH MAIN STREET
NEW CITY, NY 10956

DRAWING TITLE

ELECTRICAL DETAILS

SEAL	SCALE	PROJECT NO.
	1" = 1'-0"	NRCK0018
	DRAWN BY: GD	DRAWING NO.
	CHECKED BY: JF	E7.1
	DATE: 2024.04.05	

9/16/2024 2:40:25 PM